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IN THE

Supreme Court of the United States

OCTOBER TERM, 1980

CHRYSLER CORPORATION,

Petitioner,

vs.

RICHARD F. DAWSON and DIANA DAWSON, individually and DIANA DAWSON as parent and natural Guardian of BRYAN DAWSON, a minor,

Respondents.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

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Questions Presented

1. Whether the National Traffic and Motor Vehicle Safety Act, which expressly preempts states from establishing any safety standard that is not identical to Federal Motor Vehicle Safety Standards governing the same aspect of vehicle performance, 15 U.S.C. § 1392(d), precludes individual juries in product liability actions from adopting safety standards under state common law that are not identical to applicable Federal Motor Vehicle Safety Standards?

2. Whether the objectives of the National Traffic and Motor Vehicle Safety Act, 15 U.S.C. § 1381 *et seq.*, to improve vehicle safety and establish national uniformity in vehicle safety standards are frustrated when a state permits individual juries to adopt safety standards in common law product liability actions without requiring proof that such standards will improve overall vehicle crashworthiness and will comply with mandatory Federal Motor Vehicle Safety Standards?

3. Whether a state common-law standard for assessing liability for automotive designs that does not require plaintiffs to prove that their proposed alternative designs will improve overall vehicle crashworthiness and will comply with mandatory Federal Motor Vehicle Safety Standards poses an unconstitutional burden on interstate commerce by promoting adoption of inconsistent and conflicting safety standards by individual juries in various states?

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PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

Petitioner, Chrysler Corporation, respectfully prays that a writ of certiorari issue to review the judgment of the United States Court of Appeals for the Third Circuit (the "Court of Appeals") filed on September 11, 1980.

Opinions Below

The opinion of the Court of Appeals (the "Opinion") is unreported and appears in Appendix A. The Order of the Court of Appeals denying Chrysler's Petition for Rehearing En Banc, dated October 17, 1980, appears in Appendix C.

Jurisdiction

The judgment of the Court of Appeals (Appendix B) was filed on September 11, 1980. A timely Petition for Rehearing En Banc was denied on October 17, 1980. This Petition for Certiorari was filed within ninety days thereafter. Jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

Federal Constitutional Provisions and Statutes Involved

The questions presented in this petition involve the Supremacy and Commerce Clauses of the United States Constitution, art. VI, cl. 2 and art. I, § 8, cl. 3, respectively; and the National Traffic and Motor Vehicle Safety Act of 1966, Pub. L. 89-563, tit. I. § 107, 80 Stat. 718, *codified in* 15 U.S.C. § 1381 *et seq.* (1976) and regulations promulgated thereunder. The Constitutional provisions are set out in Appendix H and material portions of the Act are reproduced in Appendix D. Material portions of the regulations are reproduced in Appendix E and Appendix F.

Statement of the Case

The Federal Regulatory Scheme. The National Traffic and Motor Vehicle Safety Act of 1966 (the "Act") established a comprehensive federal regulatory scheme governing the formulation and maintenance of Federal Motor Vehicle Safety Standards. 15 U.S.C. § 1381 *et seq.* A new automobile may not be sold or even manufactured for sale unless it complies with these standards. 15 U.S.C. § 1397(a)(1)(A). Among the regulations promulgated by the National Traffic and Highway Safety Administration ("NHTSA") are standards designed to protect

against occupant injury in side-impact collisions. *See* 49 C.F.R. § 571.208; 49 C.F.R. § 571.214. The Act contains a broad explicit preemption provision, which precludes states from adopting safety standards that are "not identical" to federal standards regulating the "same aspect of performance." 15 U.S.C. § 1392(d). The Act also provides that "compliance with any Federal motor vehicle safety standard . . . does not exempt any person from any liability under common law." 15 U.S.C. § 1397(c).

The District Court Proceeding. On September 7, 1974, respondent Richard F. Dawson, a police officer, was seriously injured when he lost control of a 1974 Dodge Monaco patrol car manufactured by petitioner Chrysler Corporation. The vehicle slid off a rain-soaked highway and crashed laterally into a steel pole, which intruded through the side of the automobile.

An action, alleging that Mr. Dawson's injuries were enhanced because of a defect in the vehicle's design, was initiated in Pennsylvania state court and was removed to the United States District Court for the Eastern District of Pennsylvania pursuant to 28 U.S.C. § 1441(a) on the ground of diversity of citizenship. Thereafter, the action was transferred to the District Court for the District of New Jersey pursuant to 28 U.S.C. § 1404(a). The case was tried under the substantive law of New Jersey before a jury.

Respondents contended that the Dodge Monaco should have been designed in such a manner as to permit less intrusion by the pole into the interior of the vehicle. They alleged that the vehicle was defectively designed because it lacked a continuous frame extending through the perimeter area of the vehicle between the front and rear seats and reinforcing frame cross-members running between the vertical body posts located on either side of the car.

The steel required for the proposed alternative design would have added 200 to 250 pounds to the weight of the vehicle. Opinion at 6a. Respondents' expert witnesses testified that their alternative frame design would be safer for the driver in a side-impact collision with a stationary object, such as occurred in this case, and that the alternative design was technologically feasible at the time the vehicle was manufactured. *Id.* Respondents were unable to show that their proposed design had in fact been used by any automobile manufacturer.

Petitioner contended that respondents' burden of showing a practicable, safer design[1] required that they offer evidence that the re-designed vehicle would comply with mandatory Federal Motor Vehicle Safety Standards and would be as safe as petitioner's design in other types of accidents.

Petitioner established, without contradiction, that in frontal collisions, which occur far more frequently than side-impact collisions, "it is desirable to have a car designed to collapse upon impact because the deformation would absorb much of the shock of the collision, and divert the force of deceleration away from the vehicle's passengers." *Id.* at 26a. As the court found, respondents' expert witnesses conceded that "the heavier and more rigid an automobile, the less able it is to absorb energy upon impact with a fixed object, and therefore the major force of an accident might be transmitted to the passengers." *Id.* at 17a. Yet, none of respondents' expert witnesses considered how

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[1] New Jersey law requires that a plaintiff seeking to establish the defectiveness of a product design in a "crashworthiness" case "must offer proof of an alternative, safer design, practicable under the circumstances." *Huddell* v. *Levin*, 537 F.2d 726, 737 (3d Cir. 1976) (applying New Jersey law).

the more rigid frame design would affect the vehicle's crashworthiness in any accident other than a side-impact collision with a stationary object.[2]

In addition, respondents failed to offer any evidence that a vehicle manufactured according to their proposed design would comply with the mandatory Federal Motor Vehicle Safety Standards. Unquestionably, the vehicle as designed by Chrysler complied fully with all federal safety standards. *Id.* at 6a.

The jury returned a verdict in favor of respondents, finding, in answer to special interrogatories, that the structure of the Dodge Monaco was defective and unreasonably dangerous; that Mr. Dawson suffered more severe injuries than if Chrysler had used respondents' alternative design; and that Chrysler's design was the proximate cause of his enhanced injuries. *Id.* at 7a.

The Court of Appeals' Opinion. On appeal to the United States Court of Appeals for the Third Circuit, petitioner sought reversal of the judgment in that, *inter alia*, respondents offered no evidence that their proposed design would (1) conform to existing Federal Motor Vehicle Safety Standards, and (2) be as safe as petitioner's design when other collision situations were considered.[3]

In responding to petitioner's arguments, the Court of Appeals acknowledged a "troubling public policy dilemma

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[2] *See, e.g.*, testimony of Dr. Steven C. Batterman, Court of Appeals Appendix for Appellant, p. 1755a, lines 1-19, pp. 1901a, line 2 to 1903a, line 2, reproduced in Appendix G.

[3] Chrysler also presented several arguments challenging the adequacy of respondents' evidence in various respects. These were rejected by the Court of Appeals and are not raised in this Petition since they do not involve federal questions.

—namely, that under existing federal law individual juries in the various states are permitted, in effect, to establish national automobile safety standards." The court found that:

> The result of such an arrangement, predictably, is not only incoherence in the safety requirements set by disparate juries, but also the possibility that a standard established by a jury in a particular case will conflict with other policies regarding the economics of the automobile industry as well as energy conservation programs.

Id. at 4a.

By way of illustration, the court noted:

> while the jury found Chrysler liable for not producing a rigid enough vehicular frame, a factfinder in another case might well hold the manufacturer liable for producing a frame that is too rigid. Yet, as pointed out at trial, in certain types of accidents—head-on collisions—it is desirable to have a car designed to collapse upon impact because the deformation would absorb much of the shock of the collision, and divert the force of deceleration away from the vehicle's passengers. In effect, this permits individual juries applying varying laws in different jurisdictions to set nation-wide automobile safety standards and to impose on automobile manufacturers conflicting requirements. It would be difficult for members of the industry to alter their design and production behavior in response to jury verdicts in such cases, because their response might well be at variance with what some other jury decides is a defective design. Under these circumstances, the law imposes on the industry the responsibility of insuring vast numbers of persons involved in automobile accidents.

Id. at 25a-26a.

While recognizing that "it is not at all clear that the present arrangement of permitting individual juries, under varying standards of liability, to impose this obligation on manufacturers is fair or efficient," the Court of Appeals "decline[d] . . . to do anything in this regard except to bring the problem to the attention of the legislative branch." *Id.* at 27a. Consequently, the court, "with uneasiness regarding the consequences of [its] decision," affirmed the judgment of the District Court. *Id.* at 25a.

On October 17, 1980, the Court of Appeals denied Chrysler's Petition for Rehearing En Banc.

Reasons for Granting the Writ

The writ should be granted because this case raises important issues of federal law which have not been, but should be, settled by this Court. These issues are, as the Court of Appeals emphasized, of overriding social importance, involving significant and troubling national concerns of economic and public policy. *See* Opinion at 3a.

The Court of Appeals' express disenchantment with a system that permits individual juries in different jurisdictions to set nationwide automobile safety standards, while certainly well-founded, is an insufficient response to the issues presented. The Court of Appeals' failure to recognize that courts are empowered to prevent the establishment of conflicting vehicle safety standards by juries stemmed from its notion that under the Act "states are free . . . to create various standards of liability for automobile manufacturers with respect to design and structure. . . ." *Id.* at 25a. This conclusion was drawn from Section 1397(c) of the Act, which provides that compliance

with federal standards does not confer a blanket exemption from state common law liability. However, the conclusion completely ignores the effect of Section 1392(d) of the Act, which prohibits a system of state-by-state formulation of safety standards where the state standards are not shown to be identical with federal standards governing the same aspect of performance.

Although the Act does not shield manufacturers from liability at common law, a fair reading of the statute mandates that courts, when they do enter this sphere of comprehensive federal law, apply and interpret state common-law standards of liability in such a way as to effectuate rather than subvert the announced Congressional goals of improving motor vehicle safety and creating uniform national performance standards. This the Court of Appeals failed to do—by permitting respondents to establish a *prima facie* case of automotive design defect by proposing an alternative design that would allegedly improve only a single feature of vehicle performance (*i.e.*, protection in side-impact collisions with a stationary object) without requiring the presentation of any proof of (1) the effect of the proposed design change on crashworthiness in other types of accidents and (2) the compatibility of the design change with existing mandatory Federal Motor Vehicle Safety Standards.

The alternative frame design mandated by the jury in this case constitutes a state safety standard that is preempted by Section 1392(d) of the Act because it is "not identical" to applicable Federal Motor Vehicle Safety Standards governing the "same aspect of performance." Moreover, as applied by the Court of Appeals, the New Jersey common-law standard for determining vehicle safety frustrates the important Congressional objectives of im-

proving vehicle safety and creating uniform national performance standards. This approach to imposing common-law liability is inconsistent with the express terms of the Act as well as the integrated regulatory scheme created thereunder, and thus offends the notion of federal primacy embodied in the Supremacy Clause. In addition, it imposes an undue burden on interstate commerce by promoting the proliferation of incompatible jury-made design standards.

I. As applied by the Court of Appeals, New Jersey's common-law standard for determining vehicle safety, and the state motor vehicle safety standard generated thereby, violate the Supremacy Clause.

A federal statute or regulation will displace state law if there is an explicit preemption provision in the statute or regulation, if a preemptive intent is implicit in the federal program, or if there is a dominant federal interest in uniformity. A state law will also be held invalid if it is inconsistent with governing federal standards or if it frustrates the purposes and objectives of Congress in enacting the federal program. *See Ray* v. *Atlantic Richfield Co.*, 435 U.S. 151 (1978); *Jones* v. *Rath Packing Co.*, 430 U.S. 519, *rehearing denied*, 431 U.S. 925 (1977).

The language of the Act and its legislative history demonstrate that Congress envisioned a comprehensive and uniform federal regulatory scheme designed to promote increased safety for persons involved in automobile accidents. The Act seeks to achieve improved vehicle safety by placing "primary responsibility" for setting safety standards "squarely upon the Federal Government." S. Rep. No. 1301, 89th Cong., 2d Sess., *reprinted in* [1966]

U.S. Code Cong. & Ad. News 2709, 2712. The expressed goal of the federal legislative scheme is to establish "motor vehicle safety standards [that will] be not only strong and adequately enforced, but . . . uniform throughout the country." *Id.* at 2720. *See Truck Safety Equipment Institute* v. *Kane,* 466 F. Supp. 1242 (M.D. Pa. 1979). The Act, in clear, unequivocal language, seeks to achieve this objective by prohibiting states from establishing or maintaining "any safety standard" that is "not identical" to federal standards "applicable to the same aspect of performance."[4] 15 U.S.C. § 1392(d). This preemption clause is exceptionally broad and is written in the "strongest possible terms"; it prohibits any state standard relating to the same aspect of performance—whether that state standard is higher or lower than the federal standard. *Chrysler Corp.* v. *Tofany,* 419 F.2d 499, 512 (2d Cir. 1969) (Friendly, J., concurring). The House Report emphasized that subsection 1392(d) "is intended to result in uniformity of standards so that the public as well as industry will be guided by one set of criteria rather than a multiplicity of diverse standards." H.R. Rep. No. 1776, 89th Cong., 2d Sess. 17 (1966).

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[4] In only one circumstance—where a state or political subdivision thereof procures vehicles for its own use—may standards different from federal vehicle safety standards be established. 15 U.S.C. § 1392(d). Although the Dodge Monaco driven by Mr. Dawson was used as a police patrol car, the local police department did not impose any special requirements for frame design or occupant protection as part of its procurement specifications for the vehicle. Court of Appeals Appendix for Appellant, Vol. XII, pp. 3511a, 3560a.

A. Preemption.

As the Court of Appeals found, the jury's determination of liability in this case has the practical effect of establishing a state motor vehicle safety standard. *See* Opinion at 25a-26a. That finding is consistent with this Court's recognition that verdicts in common-law actions can be functionally equivalent to formal regulatory activity:

> [R]egulation can be as effectively exerted through an award of damages as through some form of preventive relief. The obligation to pay compensation can be, indeed is designed to be, a potent method of governing conduct and controlling policy. Even the States' salutary effort to redress private wrongs or grant compensation for past harm cannot be exerted to regulate activities that are potentially subject to the exclusive federal regulatory scheme.

San Diego Building Trades Council v. *Garmon*, 359 U.S. 236, 247 (1959) (citation omitted). *See also, Nashville Chattanooga & St. Louis Railway* v. *Browning*, 310 U.S. 362, 366-70 (1940); *Jones* v. *Rath Packing Co.*, 430 U.S. 519, 526, *rehearing denied*, 431 U.S. 925 (1977).

The state motor vehicle safety standard established in this case—a heavier and more rigid frame design—is "not identical" to federal standards governing the "same aspect of performance" and is therefore expressly preempted by Section 1392(d) of the Act.

Federal Motor Vehicle Safety Standards 208 and 214 govern the precise aspect of vehicle performance at issue in this case—occupant protection in side-impact collisions.[5]

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[5] Since the alternative design offered by respondents would significantly increase the weight of the vehicle, it may also implicate 49 C.F.R. § 571.105, dealing with hydraulic brake system standards, and 49 C.F.R. § 571.110, dealing with tire selection and rim standards. It may also conflict with federal fuel efficiency objectives. Opinion at 26a.

49 C.F.R. §§ 571.208, 571.214. Standard 208, entitled "Occupant crash protection," is designed "to reduce the number of deaths of vehicle occupants, and the severity of injuries" in frontal, lateral (side-impact), and rollover crashes by "specifying vehicle crashworthiness requirements," including passenger restraint systems. Standard 214 seeks to "minimize the safety hazard caused by intrusion into the passenger compartment in a side-impact accident" by specifying side door strength requirements.

The fact that there is no federal standard expressly regulating the rigidity of vehicle frames does not mean that there is no federal standard governing the "aspect of performance" that is involved in this case. The "aspect of performance" at issue—vehicle crashworthiness in side-impact collisions—could have been regulated in a number of different ways. The decision to deal with side-impact safety in Standards 208 and 214 by requiring passenger restraint systems and by regulating side door strength, in light of NHTSA's policy pronouncements, implicitly reflects a judgment against increasing vehicle frame rigidity.[6]

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[6] The leading cause of traffic fatalities and injuries is front-end collisions, followed by side-impact collisions. In formulating standards aimed at improving safety in side-impact crashes, NHTSA necessarily must and does in fact consider the effect that structural modifications to the side of a vehicle "might have on vehicle integrity in frontal and front-angular crashes." *See, e.g.*, 45 Fed. Reg. 17,015, 17,017 (1980). *See also* 44 Fed. Reg. 33,444 (1979). As the Court of Appeals recognized, a frame designed to ameliorate injuries in side crashes by increasing rigidity could well have the effect of worsening injuries in frontal collisions by reducing the vehicle's ability to absorb energy on impact. Opinion at 26a. Moreover, 84% of all side-impact collisions are intersection-type

(Footnote continued on following page)

This federal policy determination not to use heavier, more rigid frame designs to improve protection in such collisions is entitled to preemptive effect: "[W]here failure of . . . federal officials affirmatively to exercise their full authority takes on the character of a ruling that no such regulation is appropriate or approved pursuant to the policy of the statute," a state cannot enact such a

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(Footnote continued from preceding page)

collisions where one vehicle is struck by another, while only 16% of side-impact collisions are single-vehicle collisions with a stationary object, such as occurred in this case. *See* 44 Fed. Reg. 70,204, 70,205 (1979). NHTSA has found that "a side structure that ameliorates the effects of impacts with vertical fixed objects," such as the pole in this case, would not necessarily reduce injuries in the more common multi-vehicle side-impact collisions, 44 Fed. Reg. at 70,205-06, where bumper structures of one vehicle usually intrude into the occupant compartment of the other vehicle on a plane above the level of the frame. On the other hand, "designs that reduce the effect of bumper intrusion would also improve the safety of occupants in vehicles striking a fixed vertical object." *Id.* NHTSA has also found that if its "standards require a substantial strengthening of vehicle frames, the aggressivity of the vehicles is increased," 45 Fed. Reg. 22,044, 22,045 (1980), and the risk to occupants of small automobiles is considerably heightened. 44 Fed. Reg. 45,426 (1979). In rejecting a strengthening of the structure of certain multi-purpose passenger vehicles that would result in increased rigidity and weight of the vehicles, NHTSA has noted:

> [T]he slight additional safety that is created for the occupants of the heavier vehicles will come at the expense of occupants of lighter vehicles that they impact. Since occupants of heavier vehicles are already safer than occupants of lighter vehicles in multi-vehicle collisions, compliance with safety standards by heavier vehicles in a manner that lessens the safety of occupants of lighter vehicles impacted by them appears not to be justified.

44 Fed. Reg. 45,426 (1979).

regulation under its police power. *Bethlehem Steel Co.* v. *New York State Labor Relations Board,* 330 U.S. 767, 774 (1947). *Accord, Ray* v. *Atlantic Richfield Co., supra,* 435 U.S. at 178.

Indeed, NHTSA itself has specifically rejected the position that "any mode of design or performance that is not expressly dealt with in [a] Federal Standard is open to regulation by the states." As NHTSA has observed:

> Such a position is impractical, where the Agency's intent is to have a comprehensive, uniform regulation in a given area. . . . Congress clearly intended NHTSA to establish a single set of uniform standards to which manufacturers must comply, and that intent would tend to be defeated by [such a conclusion]. *Federal regulation has a negative as well as a positive aspect; in determining that there should be certain requirements in an area, we also are deciding against imposing others.*

Opinion Letter from the Office of Chief Counsel of the National Highway and Traffic Safety Administration, dated November 8, 1973 (emphasis supplied).

Section 1397(c) of the Act, which provides that "[c]ompliance with any Federal motor vehicle safety standard issued under this subchapter does not exempt any person from any liability under common law," does not preclude a finding that the state safety standard created by the jury is preempted by the Act and accompanying regulations "under the circumstances of this particular case." *See Hines* v. *Davidowitz,* 312 U.S. 52, 67 (1941). As this Court has emphasized, in enforcing the Supremacy Clause consideration must be given to "the relationship between state and federal laws as they are interpreted and applied, not merely as they are written." *Jones* v. *Rath Packing Co.,*

430 U.S. at 526. Congress, in promulgating § 1397(c), merely indicated that compliance with any federal safety standard would not *per se* be a defense to a common-law action. Sections 1392(d) and 1397(c) must be construed *in pari materia;* a state may impose common-law liability in an automotive design defect case but in so doing it may not adopt a safety standard that is inconsistent with federal standards applicable to the same aspect of performance.[7]

It would surely defeat the purposes of the Act to allow juries, which are ill-equipped to design automobiles under any circumstances, to adopt safety standards that state administrative agencies or legislatures, with extensive technical support services at their disposal, may not promulgate. The practical considerations that justify a restraint on the standard-promulgating powers of state agencies are even more persuasive with respect to the need for subordinating the design preferences of individual juries to the priority-setting authority of the federal government.

A fair reading of the Act contemplates a system of common-law adjudication in which state standards of vehicle safety created through findings of liability must at least be shown to conform to the federal standards. Thus, a proper interpretation of Section 1397(c), in light of the express language of the Act and its legislative history, is that Congress did not intend to allow common-law juries to adopt alternative designs that have not been shown to comply with the safety standards established by NHTSA.

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[7] Such a construction of these provisions is fully consistent with this Court's approach to reconciling federal and state regulatory interests. *See Ray* v. *Atlantic Richfield Co.*, 435 U.S. 151 (1978); *Huron Portland Cement Co.* v. *City of Detroit,* 362 U.S. 440 (1960).

B. Frustration of Congressional Purpose.

Even if the explicit preemption provisions of § 1392(d) are inapplicable to a given situation, so that states are free to develop safety standards under § 1397(c), it would nevertheless be true that those state standards could not stand "as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress." *Hines* v. *Davidowitz,* 312 U.S. 52, 67 (1941).

As previously shown, the National Traffic and Motor Vehicle Safety Act has a dual purpose: (1) reducing traffic accidents and resulting deaths and injuries, and (2) establishing uniform national vehicle safety standards. As applied by the Court of Appeals, the judicial standard used by New Jersey to evaluate vehicle safety undermines NHTSA's approach to promoting vehicle safety and threatens national uniformity of automotive regulation.

1. *The Federal Concept of Crashworthiness.* NHTSA's approach to promoting vehicle crashworthiness recognizes the interrelated nature of the risks associated with various kinds of automobile collision situations. NHTSA's comprehensive set of performance standards takes into account the fact that safeguards designed to reduce injuries in one type of collision may exacerbate injuries in another type of collision and that, consequently, requirements for increasing occupant safety must be well-coordinated. In the federal scheme, *overall* crashworthiness is determinative of vehicle safety. Reliance on isolated structural features (*e.g.,* particular frame designs) as they may perform in one crash situation (*e.g.,* side-impact collisions with stationary objects) has been rejected by NHTSA in favor of a balanced, integrated approach to crashworthiness based on maximizing overall vehicle safety when all likely colli-

sion situations are considered. *See, e.g.*, 44 Fed. Reg. 24,591, 24,594.

The jury's finding in the instant case that petitioner's design was defective was based exclusively on evidence relating to an alternative, safer design for one specific type of risk alone. This method of developing and applying a vehicle safety standard skews the integrated concept of crashworthiness adopted by NHTSA and thereby institutionalizes a mode of analysis that not only permits, but also promotes, the establishment of state safety standards that contradict the circumspect, aggregative approach to vehicle safety adopted by the federal government. This common-law perspective is myopic in that it allows plaintiffs in product liability actions to succeed on their claims without presenting evidence of the overall safety of their alternative designs and without demonstrating the compatibility of their alternative designs with federal performance standards and safety objectives.

2. *National Uniformity.* In determining whether state regulation conflicts with or frustrates the purpose of a federal regulatory scheme, this Court has frequently considered the need for national uniformity. Where uniformity is not desirable or necessary, there is more leeway for state regulation. *Florida Lime & Avocado Growers, Inc.* v. *Paul*, 373 U.S. 132 (1963). On the other hand, even in the absence of an express preemption provision, state legislation must give way where national uniformity is an important part of the federal program. *City of Burbank* v. *Lockheed Air Terminal, Inc.*, 411 U.S. 624 (1973).

Clearly, a common-law criterion for determining product safety that permits design standards to be created without proof of their effect on crashworthiness in other kinds

of accidents and without proof that they comply with Federal Motor Vehicle Safety Standards invites the formulation and application of multiple and potentially inconsistent standards that prevent the uniformity Congress sought to achieve through the Act. *Cf. Garner* v. *Teamsters, Chauffeurs & Helpers Local Union,* 346 U.S. 485, 490-91 (1953) ("a multiplicity of tribunals and a diversity of procedures are quite as apt to produce incompatible or conflicting adjudications as are different rules of substantive law").

II. As applied by the Court of Appeals, New Jersey's common-law standard for determining vehicle safety promotes adoption of inconsistent and conflicting design standards and poses an undue burden on interstate commerce.

The common-law standard for determining vehicle safety, as applied by the Court of Appeals, and the resulting *de facto* design standard adopted by the jury pose an undue burden on interstate commerce. Substantial fragmentation of safety standards is likely to result from the approach to common-law liability approved in this case. Because individual juries will be permitted to focus on one isolated design element, without having to consider the safety of the vehicle as a whole, conflicting design standards are inevitable—particularly as to those technologically integrated elements of performance that involve a balancing of competing safety objectives.

The Court of Appeals' decision raises the spectre of automobiles being continuously modified and restructured as they roll from jurisdiction to jurisdiction, while manufacturers seek to comply with conflicting local safety standards established through jury verdicts. The substantial

adverse effect on commerce that would result from the creation of multiple, inconsistent design criteria is likely to be incalculable. *See* Opinion at 26a. *See also Southern Pacific Co.* v. *Arizona,* 325 U.S. 761 (1945); *Bibb* v. *Navajo Freight Lines, Inc.,* 359 U.S. 520 (1959).

This Court has long recognized that the Commerce Clause acts as a significant independent limitation on the power of the states to regulate commerce. *Cooley* v. *Board of Wardens,* 53 U.S. 299 (1852). Moreover, the Court has applied the Commerce Clause to strike down not only state statutes that create an impermissible burden on interstate commerce, but also factual determinations by state courts, *Allenberg Cotton Co.* v. *Pittman,* 419 U.S. 20, 33-34 (1974), and damage awards based on state tort law, *San Diego Building Trades Council* v. *Garmon,* 359 U.S. 236, 246-47 (1959), that have the same effect. *See also Morgan* v. *Virginia,* 328 U.S. 373, 378-79 (1946) ("final court order" may be invalid burden on interstate commerce).

In a Commerce Clause analysis, legitimate state interests are weighed and balanced against competing or conflicting national interests. *Hunt* v. *Washington State Apple Advertising Commission,* 432 U.S. 333, 350 (1977). *See* Blumstein, *Some Intersections of the Negative Commerce Clause and the New Federalism: The Case of Discriminatory State Income Tax Treatment of Out-of-State Tax-Exempt Bonds,* 31 Vand L. Rev. 473, 490-97 (1978). This balancing process involves an analysis of four factors: (1) the legitimacy and weightiness of the purported state regulatory purpose; (2) the extent of the burden on commerce posed by the state policy or regulation; (3) the nature of the subject matter regulated; and (4) the nature of the effect of the state policy or regulation on commerce.

In weighing these factors the Court considers the availability of alternative means of achieving the state objective that would have a less severe impact on the flow of commerce. *Pike* v. *Bruce Church, Inc.*, 397 U.S. 137, 142 (1970). *See* Blumstein, 31 Vand. L. Rev. at 497-508. When these factors are analyzed and balanced in this case, it is evident that the common-law standard as applied by the Court of Appeals creates an undue burden on interstate commerce.

State Purpose. Although the promotion of highway safety is certainly a proper state purpose, that purpose may not be effectuated in a way that unduly burdens commerce. Here, New Jersey's interest in safety can be achieved in a manner less destructive of the national goals of improving vehicle safety and establishing uniform performance standards—*i.e.*, merely by requiring a plaintiff, as part of a *prima facie* case of design defect, to prove that a proposed alternative design will comply with federal safety standards and be generally at least as safe as the challenged design when various collision situations are considered.[8]

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[8] Oregon, for example, requires that in order to prove a *prima facie* case of design defect a plaintiff must show not only that his alternative design will be safer in regard to the particular product feature at issue but also that the proposed design change will not impair the product's performance and safety in other respects. In *Wilson* v. *Piper Aircraft Corp.*, 282 Or. 61, 577 P.2d 1322, *rehearing denied*, 282 Or. 411, 579 P.2d 1287 (1978), plaintiffs alleged that a small plane was defectively designed in part because it had a carbureted rather than a fuel-injected engine. The jury returned a verdict against the airplane manufacturer on the basis of the plaintiffs' evidence that carbureted engines were more susceptible to icing than fuel-injected engines and the fuel-injected engines were not only technologically feasible but probably available for use at the time the plane was manufactured. The Oregon court noted:

(Footnote continued on following page)

Extent of the Burden. To meet the jury-imposed design standard in this case, the petitioner may be compelled to redesign its automobiles significantly only to be exposed to liability because of a conflicting standard imposed by another jury. Opinion at 25a-26a. The stark dilemma created for petitioner by the verdict in this case was aptly described by the Court of Appeals:

> while the jury found Chrysler liable for not producing a rigid enough frame, [should Chrysler re-design its frame accordingly] a factfinder in another case might well hold the manufacturer liable for producing a frame that is too rigid.

Id. Petitioner, unable to modify its automobiles to meet shifting state-to-state standards, would necessarily become an insurer of vast numbers of people involved in automobile accidents. *Id.* at 26a. The Commerce Clause was intended to prevent precisely this kind of economic balkanization. *H. P. Hood & Sons, Inc.* v. *Du Mond,* 336 U.S. 525 (1949).

Nature of the Subject Matter Regulated. Since the *Cooley* decision, this Court has held state regulation of matters

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(Footnote continued from preceding page)

> There is not, however, any evidence about what effect the substitution of a fuel-injected engine in this airplane design would have had upon the airplane's . . . over-all performance, or safety in respects other than susceptibility to icing.

Id. at 70, 577 P.2d at 1327. Consequently, the Oregon Supreme Court held that the plaintiffs failed to advance sufficient evidence to meet their burden of proving an alternative, safer design and that on this ground alone a new trial was required. *Id.* at 71, 577 P.2d at 1328.

requiring uniform national regulation to be invalid. As the Court noted in *Southern Pacific Co.* v. *Arizona,* 325 U.S. 761, 767 (1945), states cannot "regulate those phases of the national commerce which, because of the need of national uniformity, demand that their regulation, if any, be prescribed by a single authority." A maximum train length law was held invalid in *Southern Pacific* because of the "confusion" that would arise "under the varied system of state regulation" and the "unsatisfied need for uniformity in such regulation." *Id.* at 774. *See also Bibb* v. *Navajo Freight Lines, Inc.,* 359 U.S. at 529-30. In this case, the expression by Congress of the need for national uniformity in setting vehicle safety standards is entitled to great weight.

Nature of the Effect on Commerce. The nature of a burden on commerce may be even more significant than its extent. *Pike* v. *Bruce Church, Inc.,* 397 U.S. at 145. One type of burden that is especially disfavored is the risk of multiple, inconsistent regulations imposed by a variety of states on interstate commercial enterprises. *Morgan* v. *Virginia,* 328 U.S. at 377-80; *Southern Pacific Co.* v. *Arizona,* 325 U.S. at 774; *Bibb* v. *Navajo Freight Lines, Inc.,* 359 U.S. at 524. Were other courts to follow the approach taken by the Court of Appeals in applying common-law liability, the likely result would be the generation of a panoply of inconsistent design standards that would have a devastating effect on the American automobile industry.

Balancing of the State and Federal Interests. While New Jersey's interest in safety is legitimate, it does not outweigh the burden that is imposed on interstate commerce in this instance. The case of *Bibb* v. *Navajo Freight Lines, Inc., supra,* is most instructive in this regard. The Court in *Bibb* held invalid an Illinois mudguard law pur-

portedly justified by safety concerns. Illinois argued that the contour mudguards were safer than the kind of mudguards permitted in neighboring states because the contour mudguards alleviated problems of flying debris. 529 U.S. at 525. In rejecting this argument, the Court found that the use of contour mudguards created other hazards to highway safety, such as brake overheating and mudguards falling off trucks onto the road. *Id.* The *Bibb* analysis suggests strongly that in this case the impact of respondents' proposed design on overall safety—not just the impact on safety in side-impact collisions with stationary objects—must be evaluated by the trier of fact before common-law liability may be imposed. *See also Southern Pacific Co.* v. *Arizona,* 325 U.S. 761 (1945). The narrow, myopic focus permitted in the instant case can yield only the most speculative contributions to motor vehicle safety. *See Raymond Motor Transportation, Inc.* v. *Rice,* 434 U.S. 429 (1978).

Weighed against the inconclusive, and possibly even negative, overall safety effect of designs derived through a fragmented and myopic analysis is the substantial adverse effect on commerce that results from the creation of multiple, inconsistent design criteria. This burden on commerce is excessive in relation to the dubious benefits accruing from the Court of Appeals' decision. An overall crashworthiness standard would be compatible with existing federal norms, would more likely result in consistent adjudications, and would thus be less likely to impose an undue burden on interstate commerce.

CONCLUSION

For the foregoing reasons, the petition for a writ of certiorari should be granted.

Respectfully submitted,

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December 15, 1980

APPENDIX A

Opinion of the United States Court of Appeals for the Third Circuit

UNITED STATES COURT OF APPEALS

FOR THE THIRD CIRCUIT

No. 79-1363

RICHARD F. DAWSON and DIANA DAWSON, individually and DIANA DAWSON as parent and natural Guardian of BRYAN DAWSON, a minor,

v.

CHRYSLER CORPORATION,

Defendant-Third Party Plaintiff,

v.

TOWNSHIP OF PENNSAUKEN, DELTA LEASING COMPANY and CHERRY HILL DODGE, INC.,

Third Party Defendants,

v.

Appendix A

TOWNSHIP OF PENNSAUKEN,

Fourth Party Plaintiff,

v.

CUMBERLAND MUTUAL FIRE INSURANCE COMPANY,

Fourth Party Defendant,

v.

PEERLESS INSURANCE COMPANY,

Fourth Party Defendant,

Defendant, Chrysler Corporation,

Appellant.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF NEW JERSEY

(C.A. No. 76-1651)

Argued January 7, 1980

Reargued April 30, 1980

Before: ADAMS, VAN DUSEN and WEIS, *Circuit Judges*

(Filed—September 11, 1980)

Appendix A

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OPINION OF THE COURT

ADAMS, *Circuit Judge.*

This appeal from a jury verdict and entry of judgment in favor of the plaintiffs arises out of a New Jersey automobile accident in which a police officer was seriously injured. The legal questions in this diversity action, that are governed by New Jersey law, are relatively straight-forward. The public policy questions, however, which are beyond the competence of this Court to resolve and with which Congress ultimately must grapple, are complex and implicate national economic and social concerns.

In adjudicating this appeal, we first decide the question whether the district court erred in denying the defendant's

motion for judgment notwithstanding the verdict. We then turn to the issue whether certain evidentiary mistakes were committed, which would require a new trial. The third substantive question relates to the propriety of the computation of prejudgment interest. Finally, we address the troubling public policy dilemma—namely, that under existing federal law individual juries in the various states are permitted, in effect, to establish national automobile safety standards. The result of such an arangement, predictably, is not only incoherence in the safety requirements set by disparate juries, but also the possibility that a standard established by a jury in a particular case will conflict with other policies regarding the economics of the automobile industry as well as energy conservation programs.

I. Factual Background

On September 7, 1974, Richard F. Dawson, while in the employ of the Pennsauken Police Department, was seriously injured as a result of an automobile accident that occurred in Pennsauken, New Jersey. As Dawson was driving on a rain-soaked highway, responding to a burglar alarm, he lost control of his patrol car—a 1974 Dodge Monaco. The car slid off the highway, over a curb, through a small sign, and into an unyielding steel pole that was fifteen inches in diameter. The car struck the pole in a backwards direction at a forty-five degree angle on the left side of the vehicle; the point of impact was the left rear wheel well. As a result of the force of the collision, the vehicle literally wrapped itself around the pole. The pole ripped through the body of the car and crushed Daw-

son between the seat and the "header" area of the roof, located just above the windshield. The so-called "secondary collision" of Dawson with the interior of the automobile dislocated Dawson's left hip and ruptured his fifth and sixth cervical vertebrae. As a result of the injuries, Dawson is now a quadraplegic. He has no control over his body from the neck down, and requires constant medical attention.

Dawson, his wife, and their son brought suit in the Court of Common Pleas of Philadelphia against the Chrysler Corporation, the manufacturer of the vehicle in which Dawson was injured. Chrysler removed the case to the United States District Court for the Eastern District of Pennsylvania, 28 U.S.C. §1441(a) (1976), on the grounds of diversity, and subsequently had the case transferred to the District Court for the District of New Jersey.[1] *Id.* §1404(a). The plaintiffs' claims were based on theories of strict products liability and breach of implied warranty of fitness. They alleged that the patrol car was defective because it did not have a full, continuous steel frame extending through the door panels, and a cross-member running through the floor board between the posts located between the front and rear doors of the vehicle. Had the vehicle been so designed, the Dawsons alleged, it would have "bounced" off the pole following relatively slight penetration by the pole into the passenger space.

Expert testimony was introduced by the Dawsons to prove that the existing frame of the patrol car was unable

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[1] Following transfer, Chrysler filed a third-party complaint against the Township of Pennsauken, Delta Leasing Co., and Cherry Hill Dodge, Inc. The Township then filed a fourth party complaint against the Cumberland Mutual Fire Insurance Co. and the Peerless Insurance Co. These parties are not involved in the present appeal.

to withstand side impacts at relatively low speed, and that the inadequacy of the frame permitted the pole to enter the passenger area and to injure Dawson. The same experts testified that the improvements in the design of the frame that the plaintiffs proposed were feasible and would have prevented Dawson from being injured as he was. According to plaintiffs' expert witnesses, a continuous frame and cross-member would have deflected the patrol car away from the pole after a minimal penetration into the passenger area and, they declared, Dawson likely would have emerged from the accident with only a slight injury.

In response, Chrysler argued that it had no duty to produce a "crashproof" vehicle, and that, in any event, the patrol car was not defective. Expert testimony for Chrysler established that the design and construction of the 1974 Dodge Monaco complied with all federal vehicle safety standards[2] and that deformation[3] of the body of the vehicle is desirable in most crashes because it absorbs the impact of the crash and decreases the rate of deceleration on the occupants of the vehicle. Thus, Chrysler's experts asserted that, for most types of automobile accidents, the design offered by the Dawsons would be less safe than the existing design. They also estimated that the steel parts that would be required in the model suggested by the Dawsons would have added between 200 and 250 pounds to the weight, and approximately $300 to the price of the vehicle. It was also established that the 1974 Dodge Monaco's uni-

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[2] *See* 49 C.F.R. 571.1 (1979).

[3] Deformation is a term used in this context to describe the collapsing of the body and frame of a vehicle upon impact with a stationary object.

body construction was stronger than comparable Ford and Chevrolet vehicles.

After the conclusion of all testimony, Chrysler moved for a directed verdict, which the district judge denied. The jury thereupon returned a verdict in favor of the plaintiffs. In answers to a series of special interrogatories, the jurors concluded that (1) the body structure of the 1974 Dodge Monaco was defective and unreasonably dangerous; (2) Chrysler breached its implied warranty that the vehicle would be fit for use as a police car; (3) as a result of the defective design and the breach of warranty, Dawson sustained more severe injuries than he would have incurred had Chrysler used the alternative design proposed by the Dawsons; (4) the defective design was the proximate cause of Dawson's enhanced injuries; and (5) Dawson's failure to use a seatbelt was not a proximate cause of his injuries. The jury awarded Mr. Dawson $2,064,863.19 for his expenses, disability, and pain and suffering, and granted Mrs. Dawson $60,000.00 for loss of consortium and loss of services. After the district court entered judgment,[4] Chrysler moved for judgment notwithstanding the verdict or, al-

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[4] The judgment as originally filed by the district court did not resolve the claims involving the third- and fourth-party plaintiffs and defendants to this action. *See* note 1 *supra*. However, the district court filed a certificate under Fed. R. Civ. P. 54(b) on January 1, 1980, certifying that a final judgment was entered with respect to the Dawsons' claims against Chrysler even though judgment had not yet been entered in the third- and fourth-party actions. Inasmuch as this certificate was entered prior to the argument before this Court and because neither party is prejudiced by the late filing of the Rule 54(b) certificate, we have appellate jurisdiction. *Tilden Financial Corp.* v. *Palo Tire Serv.*, 596 F.2d 604, 606-07 (3d Cir. 1979).

ternatively for a new trial. The court denied both motions. The Dawsons then requested pre-judgment interest of eight percent per annum of the damages award, accruing from the time suit was instituted to the date of the judgment. The trial judge granted the request in the amounts of $388,042.35 for Mr. Dawson and $11,274.72 for Mrs. Dawson.

On appeal, Chrysler raises the following contentions: (1) It owed no duty to the Dawsons to manufacture an automobile that would withstand the type of collision that occurred here. (2) The evidence presented by the Dawsons was insufficient to establish that the patrol car was defective and unreasonably dangerous or that Chrysler breached an implied warranty of fitness. (3) The evidence did not sufficiently establish that Dawson's injuries in fact were caused by the allegedly defective design. (4) The trial court erred in permitting Dawsons' attorney to use documents containing the results of automobile safety tests in cross-examining one of Chrysler's expert witnesses—without first establishing the reliability of the documents. (5) The district court erred in permitting the jurors to take into the jury room a copy of portions of a Calspan automobile safety report. (6) The trial judge erred in granting the Dawsons' motion for prejudgment interest.

We affirm.

II. Discussion

At the outset, it is important, indeed crucial, to point out, that the substantive issues of this diversity case are controlled by the law of New Jersey.

Appendix A

A. *Judgment Notwithstanding the Verdict*

Dawsons' claims are premised on two legal theories—strict tort liability and breach of an implied contractual warranty. As we recognized in *Huddell* v. *Levin*, 537 F.2d 726 (3d Cir. 1976), under the law of New Jersey, the governing principles of strict liability and the implied warranty theory are identical.[5] Accordingly, we proceed with the adjudication of this appeal pursuant to the rubric of strict liability.

Under New Jersey law, a defendant in a tort action may not be held liable unless he owes a duty of care to the plaintiff. The question of duty is to be resolved in the first instance by the trial court. If such a duty exists, then a jury in a strict liability action must decide two factual questions: (1) whether the product at issue was defective, and (2) whether the defective product was a proximate cause of the plaintiff's injuries. *Suter* v. *San Angelo Foundry & Machine Co.*, 81 N.J. 150, 176, 406 A.2d 140, 153 (1979). With these guidelines in mind, we turn to the contentions set forth by Chrysler in its appeal from the denial of its motion for judgment notwithstanding the verdict.

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[5] Most jurisdictions do not treat the doctrines of strict liability and implied warranty as identical concepts. For example, most states do not permit a plaintiff to recover under strict liability where the only damages alleged are for injuries to the defective products itself—that is, for the failure of the product to conform to the expectations of the buyer and the seller. *Compare Sentor* v. *A and M Karaghensian, Inc.*, 44 N.J. 52, 66, 207 A.2d 305, 312 (1965) with *Jones & Laughlin Steel Corp.* v. *Johns-Manville Sales Corp.*, Nos. 79-1433 & 79-1434 (3d Cir. filed July 9, 1980) (Illinois law) *and* cases cited therein, slip op. at 12-14 & n.13.

Appendix A

1. *Duty*

The New Jersey Supreme Court recently reviewed the concept of duty in tort actions and concluded that "[t]he question is ultimately one of public policy," and the answer "depends upon a balancing of the nature of the risk, the public interest and the relationship of the parties." *Id.* at 172, 406 A.2d at 151. The policies underlying the concept of duty include "the economic good of the group, practical administration of the law, justice between the parties and other considerations relative to the environment out of which the case arose." *Id.* (quoting Green, Duties, Risks, Causation, Doctrines, 41 Texas L. Rev. 42, 45 (1962)).

Chrysler urges that the district court erred in holding that it had a duty of care towards Dawson because it had no obligation to manufacture a vehicle that would protect a passenger against the type of harm suffered by Dawson. As we understand Chryler's argument, however, it appears to be directed, not to Chryler's duty vis-a-vis Dawson, but rather to the question whether the patrol car was defective inasmuch as it did not adequately prevent Dawson from sustaining serious injury. For, as we stated in *Huddell,* it is "beyond peradventure that an automobile manufacturer today has some legal obligation to design and produce a reasonably crashworthy vehicle. . . . Rephrased in the terminology of strict liability, the manufacturer must consider accidents as among the 'intended' uses of its products," and passengers injured in such accidents as among the group of reasonably foreseeable plaintiffs. 537 F.2d at 735. Thus, Chrysler had a duty to protect Dawson, as well as other users of its vehicles, against harm resulting from automobile accidents such as that

which occurred here. Whether Chrysler may be held liable depends, of course on concomitant findings that Chrysler breached this duty by producing a patrol car that was defective, and that the defective product proximately caused Dawson's injuries.

2. *Defective Product*

Thus, the controlling issue in the case is whether the jury could be permitted to find, under the law of New Jersey, that the patrol car was defective. In *Suter,* the New Jersey Supreme Court summarized its state's law of strict liability as follows:

> If at the time the seller distributes a product, it is not reasonably fit, suitable and safe for its intended or reasonably foreseeable purposes so that users or others who may be expected to come in contact with the product are injured as a result thereof, then the seller shall be responsible for the ensuing damages.

81 N.J. at 169, 406 A.2d at 140 (footnote omitted). The court in adopting this test, specifically rejected the requirement of the Restatement (Second) of Torts §402A that the defect must cause the product to be "unreasonably dangerous to the user or consumer."[6] In the court's

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[6] Section 402A of the Restatement (Second) of Torts provides:

> (1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if

(Footnote continued on following page)

view, "the *Restatement* language may lead a jury astray for '[i]t may suggest an idea like ultra-hazardous, or abnormally dangerous, and thus give rise to the impression that the plaintiff must prove that the product was unusually or extremely dangerous.'" 81 N.J. at 175, 406 A.2d at 151 (quoting Wade, *On the Nature of Strict Liability for Products,* 44 Miss. L. J. 825, 832 (1973)).

The determination whether a product is "reasonably fit, suitable and safe for its intended or reasonably foreseeable purposes" is to be informed by what the New Jersey Supreme Court has termed a "risk/utility analysis." *Cepeda* v. *Cumberland Engineering Co., Inc.,* 76 N.J. 152, 172-79, 386 A.2d 816, 825-29 (1978). Under this approach, a product is defective if "a reasonable person would conclude that the magnitude of the scientifically perceivable danger *as it is proved to be at the time of trial* outweighed the benefits of the way the product was so designed and marketed." *Id.* at 172-73, 386 A.2d at 826 (quoting Keeton, *Products Liability and the*

(Footnote continued from preceding page)

(a) the seller is engaged in the business of selling such a product, and

(b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.

(2) The rule stated in Subsection (1) applies although

(a) The seller has exercised all possible care in the preparation and sale of his product, and

(b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

Appendix A

Meaning of Defect, 5 St. Mary's L. J. 30, 37-38 (1973) (emphasis in original)). The court in *Cepeda,* relying heavily on the article by Dean John Wade, referred to in *Suter,* identified seven factors that might be relevant to this balancing process:

> (1) The usefulness and desirability of the product—its utility to the user and to the public as a whole.
>
> (2) The safety aspects of the product—the likelihood that it will cause injury, and the probable seriousness of the injury.
>
> (3) The availability of a substitute product which would meet the same need and not be as unsafe.
>
> (4) The manufacturer's ability to eliminate the unsafe character of the product without impairing its usefulness or making it too expensive to maintain its utility.
>
> (5) The user's ability to avoid danger by the exercise of care in the use of the product.
>
> (6) The user's anticipated awareness of the dangers inherent in the product and their avoidability, because of general public knowledge of the obvious condition of the product, or of the existence of suitable warnings or instructions.
>
> (7) The feasibility, on the part of the manufacturer, of spreading the loss by setting the price of the product or carrying liability insurance.

Id. at 173-74, 386 A.2d at 826-27 (quoting Wade, *On the Nature of Strict Tort Liability for Products,* 44 Miss. L. J. 825, 837-38 (1973). The court suggested that the trial

judge first determine whether a balancing of these factors precludes liability as a matter of law. If it does not, then the judge is to incorporate into the instructions any factor for which there was presented specific proof and which might be deemed relevant to the jury's consideration of the matter. *Id.*

Chrysler maintains that, under these standards, the district court erred in submitting the case to the jury because the Dawsons failed, as a matter of law, to prove that the patrol car was defective. Specifically, it insists that the Dawsons did not present sufficient evidence from which the jury reasonably might infer that the alternative design that they proffered would be safer than the existing design, or that it would be cost effective, practical, or marketable. In short, Chrysler urges that the substitute design would be less socially beneficial than was the actual design of the patrol car. In support of its argument, Chrysler emphasizes that the design of the 1974 Dodge Monaco complied with all of the standards authorized by Congress in the National Traffic and Motor Vehicle Safety Act of 1966, Pub. L. 89-563, tit. I, §107, 80 Stat. 118, *codified in* 15 U.S.C. §1396 (1976), and set forth in accompanying regulations, 49 C.F.R. §571.1 (1979).

Compliance with the safety standards promulgated pursuant to the National Traffic and Motor Vehicle Safety Act, however, does not relieve Chrysler of liability in this action. For, in authorizing the Secretary of Transportation to enact these standards, Congress explicitly provided, "Compliance with any Federal motor vehicle safety standard issued under this subchapter does not exempt any person from any liability under common law." 15 U.S.C. §1397(c) (1976). Thus, consonant with

this congressional directive, we must review Chrysler's appeal on the question of the existence of a defect under the common law of New Jersey that is set forth above.

Our examination of the record persuades us that the district court did not err in denying Chrysler's motion for judgment notwithstanding the verdict. The Dawsons demonstrated that the frame of the 1974 Dodge Monaco was noncontinuous—that is, it consisted of a front portion that extended from the front of the car to the middle of the front passenger seat, and a rear portion that ran from the middle of the rear passenger seat to the back end of the vehicle. Thus, there was a gap in the seventeen-inch side area of the frame between the front and rear seats. The plaintiffs also proved that, after colliding with the pole, the car slid along the left side portion of the rear frame until it reached the gap in the frame. At that point, the pole tore through the body of the vehicle into the passenger area and proceeded to push Dawson into the header area above the windshield.

Three experts—a design analyst, a mechanical engineer, and a biochemical engineer—also testified on behalf of the Dawsons. These witnesses had examined the patrol car and concluded that it was inadequate to withstand side impacts. They testified that there was an alternative design available which, had it been employed in the 1974 Monaco, would have prevented Dawson from sustaining serious injuries. The substitute design called for a continuous frame with an additional cross member running between the so-called B-posts—the vertical posts located at the side of the car between the front and rear seats. According to these witnesses, this design was known in the industry well before the accident and had been tested by a number of independent testing centers in 1969 and in 1973.

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The mechanical engineer conducted a number of studies in order to ascertain the extent to which the alternative design would have withstood the crash. On the basis of these calculations, he testified that the pole would have penetrated only 9.9 inches into the passenger space, and thus would not have crushed Dawson. Instead, the engineer stated, the car would have deflected off the pole and back into the highway. Under these circumstances, according to the biochemical engineer, Dawson would have been able to "walk away from the accident" with but a bruised shoulder.

Also introduced by the Dawsons were reports of tests conducted for the United States Department of Transportation, which indicated that, in side collisions with a fixed pole at twenty-one miles per hour,[7] frame improvements similar to those proposed by the experts presented by the Dawsons reduced intrusion into the passenger area by fifty percent, from sixteen inches to eight inches. The study concluded that the improvements, "in conjunction with interior alterations demonstrated a dramatic increase in occupant protection."[8] There was no suggestion at trial that the alternative design recommended by the Dawsons would not comply with federal safety standards. On cross-examination, Chrysler's attorney did get the Dawsons' expert witnesses to acknowledge that the alternative design would add between 200 and 250

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[7] Eyewitness as well as expert testimony was introduced to show that the speed of the car at the time of impact was between twenty-four and twenty-six miles per hour.

[8] J. Greene, Basic Research in Crashworthiness II—Development and Testing of Vehicle Side Structure Modifications, 151 (1973).

pounds to the vehicle and would cost an additional $300 per car. The Dawsons' experts also conceded that the heavier and more rigid an automobile, the less able it is to absorb energy upon impact with a fixed object, and therefore the major force of an accident might be transmitted to the passengers. Moreover, an expert for Chrysler testified that, even if the frame of the patrol car had been designed in conformity with the plaintiffs' proposals, Dawson would have sustained injuries equivalent to those he actually incurred. Chrysler's witness reasoned that Dawson was injured, not by the intrusion of the pole into the passenger space, but as a result of being thrown into the header area of the roof by the vehicle's initial contact with the pole—that is, prior to the impact of the pole against the driver's seat.

On the basis of the foregoing recitation of the evidence presented respectively by the Dawsons and by Chrysler, we conclude that the record is sufficient to sustain the jury's determination, in response to the interrogatory, that the design of the 1974 Monaco was defective. The jury was not required to ascertain that all of the factors enumerated by the New Jersey Supreme Court in *Cepeda* weighed in favor of the Dawsons in order to find the patrol car defective. See pp. [12a-14a] *supra.* Rather, it need only to have reasonably concluded, after balancing these factors, that, at the time Chrysler distributed the 1974 Monaco, the car was "not reasonbly fit, suitable and safe for its intended or reasonably foreseeable purposes." *Suter,* 81 N.J. at 169, 406 A.2d at 149. Moreover, our role in reviewing the record for purposes of determining whether a trial judge erred in denying a motion for a directed verdict or for judgment notwithstanding the verdict is necessarily a limited one. As we said in *Hud-*

dell, " 'The Seventh Amendment bars appellate review of facts found by a jury in actions at common law. . . .' " 537 F.2d at 736 (quoting 9 C. Wright & A. Miller, Federal Practice and Procedure §2571, at 681 (1971)). Thus, we are admonished to review the record in this case in the light most favorable to the nonmoving party, the Dawsons, and to affirm the judgment of the district court denying the motions unless the record "is critically deficient of that minimum quantum of evidence from which a jury might reasonably afford relief." *Denneny* v. *Siegel,* 407 F.2d 433, 439 (3d Cir. 1969); *accord, Huddell,* 537 F.2d at 737. We hold that it is not.

3. *Proximate Cause*

The remaining question in regard to the motion for judgment notwithstanding the verdict is whether the Dawsons presented sufficient evidence to permit the jury reasonably to conclude that the design defect was the proximate cause of Dawson's injuries. In this regard, Chrysler advances three arguments. First, it urges that the patrol car was substantially modified by Dawson's employer in such a way that the car, as sold by Chrysler, could not be said to have caused the injuries. Second, it maintains that Dawson's failure to wear a seatbelt was, in fact, the proximate cause of his injuries.[9] Third, it claims that there was insufficient evidence that the defect caused Dawson to suffer more severe injuries than he would have incurred had the alternative design been employed—that is, had the patrol car not been defective.

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[9] Dawson testified that, at the time of the accident, he was not wearing a seat belt, but that this was customary police practice in order to permit officers to enter and leave their vehicles as quickly as possible.

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Counsel for the Dawsons conceded that the patrol car had been modified by the addition of a tubular roll bar and a wire mesh screen that extended between the front and rear passenger areas in order to separate the police officer from suspects. Dawsons' expert witnesses testified, however, that this alteration neither compromised the structural integrity of the vehicle, nor in any way contributed to Dawson's injuries. In contrast, the expert witnesses for Chrysler testified merely that they were not certain whether the modifications affected Dawson's injuries. Under these circumstances, the jury's implicit conclusion that the alterations were not the proximate cause of Dawson's injuires is supported by the evidence.

The jury specifically found in interrogatory five that Dawson's failure to wear his seatbelt was not a proximate cause of his injuries. Chrysler presented expert testimony that Dawson was injured when he "ramped" up the back seat into the roof of the car—that is, as he slid upwards out of his seat along the back rest—following the vehicle's initial impact with the pole. It argues therefore, that if Dawson had been wearing a seatbelt, he would not have been thrown out of the seat and would not have smashed into the roof of the car. Chrysler maintains that the jury's verdict is inconsistent with this testimony.

In *Huddell,* we noted in reviewing on appeal a question regarding causation that "the credibility of opinion evidence is for the fact-finder." 537 F.2d at 737. Here, the Dawsons presented expert witnesses who contradicted Chrysler's theory of causation. Observing initially that the patrol car was moving backwards at a forty-five degree angle at the time of impact, the witnesses opined that the force of the collision must have pushed Dawson's back and left shoulder against the rear of the seat. Under these

circumstances, they concluded, he did not "ramp" up the seat into the roof, but remained in the seat until the pole entered the passenger space, collided with the rear of the seat, and pushed both the seat and Dawson into the ceiling. In other words, had the pole been prevented from crushing up against the rear of the driver's seat, Dawson would not have been thrown into the ceiling. This testimony was corroborated by a third expert, who stated that the nature of Dawson's dislocated hip indicated that he was not thrown from the seat as Chrysler's witnesses maintained. The jurors reasonably could have found the testimony offered by the Dawsons' witnesses to be more persuasive than Chrysler's. Accordingly, Chrysler's contention that the jury's verdict is at odds with the evidence is without merit.

Chrysler's last argument regarding causation is that the plaintiffs failed to prove that Dawson's injuries were enhanced as a result of the design-defect in the patrol car. As with the other contentions, the record does not support this claim. The Dawsons presented expert testimony that the alternative design would have prevented the pole from intruding far enough into the passenger space to hit the front seat. And, as we have just observed, there was testimony that Dawson was not thrown into the ceiling of the car, but rather was crushed up against the roof as the pole forced the passenger seat into the roof. Had Dawson remained in his seat from gravity forces, and had the seat not been jammed against the roof, it is a reasonable inference that his cervical vertebrae would not have been ruptured. Indeed, the biomechanical engineer who evaluated the accident and testified for the Dawsons concluded that, if the pole had not entered the patrol car and crushed Dawson, the officer

would have suffered no more than a bruised shoulder. In view of this testimony, we cannot say that the jury's verdict on the question of proximate cause is unsupported by the record.

4. *Summary*

Inasmuch as we conclude that it was not incorrect for the district court to hold that Chrsyler had a legal duty to protect Dawson against the type of accident in which he was injured, and because the jury's findings that the 1974 Monaco was not reasonably fit to withstand the accident and that the defect proximately caused Dawson's injuries were supported by the evidence, the district court did not err in denying Chrysler's motion for judgment notwithstanding the verdict.

B. *New Trial*

1. *Admissibility of Calspan Report*

During cross-examination of one of Chrysler's expert witnesses, the attorney for the Dawsons referred to the conclusions reached in two reports on the subject of automobile crashworthiness. These reports were prepared for the United States Department of Transportation by the Calspan Corporation (formerly the Cornell Aeronautical Laboratory, Inc., of Buffalo, New York. Quotations from documents of this kind are admissible under the exception to the hearsay rule contained in Fed. R. Evid. 803(18), which provides:

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> To the extent called to the attention of an expert witness upon cross-examination or relied upon by him in direct examination, statements contained in published treatises, periodicals, or pamphlets on a subject of history, medicine, or other science or art, established as a reliable authority by the testimony or admission of the witness or by other expert testimony or by judicial notice. If admitted, the statements may be read into evidence but may not be received as exhibits.

In this case, the authoritativeness of the reports was inferentially conceded by one of Chrysler's expert witnesses. When asked by Dawsons' counsel, "since you calculated some data from them, they're reliable in that regard, aren't they," the witness replied: "Well, I have no reason to doubt their test data reflected in [the] reports." Moreover, Chrysler did not object to the use of the Calspan report. Accordingly, we hold that the Dawsons' use during cross-examination of the Calspan reports was not precluded by Rule 803(18).

Chrysler also challenges the decision of the district court, following the conclusion of all testimony, to admit the Calspan reports into evidence as plaintiffs' exhibits 110 and 111. At the time the reports were offered, Chrysler did not object to their admissibility. Although Rule 803(18) provides that such reports or treatises not be received as exhibits, in light of the fact that there was no objection to the reports and inasmuch as the jurors did not take them into the jury room during their deliberations, we conclude that the error here, if any, was harmless.

2. *Jury's Use of Diagram*

One page of one of the Calspan reports, which contained a diagram of the exterior deformation of a test car following a side collision with a stationary pole, was introduced as plaintiffs' exhibit 107, and was taken by the jurors into the jury room when they retired to decide the case. Chrysler objected to neither the admission of the document nor to the jury's use of it. On appeal, however, it urges that the admission and use by the jury of the diagram constitutes reversible error.

Although the admission of the document as an exhibit abridged the terms of Rule 803(18), we cannot say, in view of Chrysler's failure to object, that the district court committed reversible error in this regard. Even assuming arguendo that the trial court erred, in the context of this case, the error was harmless. Independent of the exhibit, there was testimony regarding the contents of the Calspan report, including the diagram in question. Counsel for the Dawsons extensively cross-examined one of Chrysler's experts about the tests diagrammed in the exhibit. In short, the exhibit was merely duplicative of the testimony. *Cf. Ammer* v. *American Export Lines, Inc.*, 326 F.2d 955, 957 n.2 (2d Cir.) (plaintiff's counsel's reading during closing argument of a physician's report that was not admitted into evidence held harmless error because the report "said in substance what the doctor had stated on the stand"), *cert. denied,* 397 U.S. 824 (1964).

For these reasons, the district court did not err in denying Chrysler's motion for a new trial.

C. *Prejudgment Interest*

Chrysler's final argument is that the district court improperly computed the amount of prejudgment interest

recoverable by the Dawsons. Specifically, it urges that prejudgment interest is not available on the portion of the damages award that will be used to pay the contingent fee owed to plaintiffs' counsel or on that portion of the award on which Dawson's workers compensation insurer has a lien.

Prejudgment interest in New Jersey tort actions is authorized by Rule 4:42-11(b) of the Civil Practice Rules Governing the Courts of the State of New Jersey (West 1979), which states:

> [T]he court shall, in tort actions, including products liability actions, include in the judgment simple interest at 8% per annum on the amount of the award from the date of the institution of the action or from a date 6 months after the date of the tort, whichever is later, provided that in exceptional cases the court may suspend the running of such prejudgment interest. The contingent fee of an attorney shall not be computed on the interest so included in the judgment.

No New Jersey case dealing with the issues raised in Chrysler's contentions regarding prejudgment interest has come to our attention. Moreover, Rule 4:42-11(b) itself provides no indication that the New Jersey Supreme Court, in adopting the Rule, intended to exclude from prejudgment interest the portion of the damage award owing to plaintiffs' counsel and Dawson's compensation carrier.[10] Under these circumstances, we decline to carve out of the rule the exemptions from prejudgment interest urged by

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[10] Under the Rule, however, counsel for plaintiff will not receive any prejudgment interest.

Chrysler. In the absence of some authority for the creation of such exemptions, Chrysler's arguments—which may well have merit—are best directed to the drafters of the Rule, the New Jersey Supreme Court, or to the New Jersey legislature.

II. Conclusion

Although we affirm the judgment of the district court, we do so with uneasiness regarding the consequences of our decision and of the decisions of other courts throughout the country in cases of this kind.

As we observed earlier, (see [page 14a] above) Congress, in enacting the National Traffic and Motor Vehicle Safety Act, provided that compliance with the Act does not exempt any person from liability under the common law of the state of injury. The effect of this provision is that the states are free, not only to create various standards of liability for automobile manufacturers with respect to design and structure, but also to delegate to the triers of fact in civil cases arising out of automobile accidents the power to determine whether a particular product conforms to such standards. In the present situation, for example, the New Jersey Supreme Court has instituted a strict liability standard for cases involving defective products, has defined the term "defective product" to mean any such item that is not "reasonably fit, suitable and safe for its intended or reasonably foreseeable purposes," and has left to the jury the task of determining whether the product at issue measures up to this standard.

The result of such arrangement is that while the jury found Chrysler liable for not producing a rigid enough vehicular frame, a factfinder in another case might well

hold the manufacturer liable for producing a frame that is too rigid. Yet, as pointed out at trial, in certain types of accidents—head-on collisions—it is desirable to have a car designed to collapse upon impact because the deformation would absorb much of the shock of the collision, and divert the force of deceleration away from the vehicle's passengers. In effect, this permits individual juries applying varying laws in different jurisdictions to set nationwide automobile safety standards and to impose on automobile manufacturers conflicting requirements. It would be difficult for members of the industry to alter their design and production behavior in response to jury verdicts in such cases, because their response might well be at variance with what some other jury decides is a defective design. Under these circumstances, the law imposes on the industry the responsibility of insuring vast numbers of persons involved in automobile accidents.

Equally serious is the impact on other national social and economic goals of the existing case-by-case system of establishing automobile safety requirements. As we have become more dependent on foreign sources of energy, and as the price of that energy has increased, the attention of the federal government has been drawn to a search to find alternative supplies and the means of conserving energy. More recently, the domestic automobile industry has been struggling to compete with foreign manufacturers which have stressed smaller, more fuel-efficient cars. Yet, during this same period, Congress has permitted a system of regulation by ad hoc adjudications under which a jury can hold an automobile manufacturer culpable for not producing a car that is considerably heavier, and likely to have less fuel efficiency.

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In sum, this appeal has brought to our attention an important conflict that implicates broad national concerns. Although it is important that society devise a proper system for compensating those injured in automobile collisions, it is not at all clear that the present arrangement of permitting individual juries, under varying standards of liability, to impose this obligation on manufacturers is fair or efficient. Inasmuch as it was the Congress that set this system in motion, and because Congress is the body best suited to evaluate and, if appropriate, to change that system, we decline today to do anything in this regard except to bring the problem to the attention of the legislative branch.

Bound as we are to adjudicate this appeal according to the substantive law of New Jersey, and because we find no basis in that law to overturn the jury's verdict, the judgment of the district court will be affirmed.

APPENDIX B

Judgment of the United States Court of Appeals for the Third Circuit

UNITED STATES COURT OF APPEALS

FOR THE THIRD CIRCUIT

No. 79-1363

RICHARD F. DAWSON and DIANA DAWSON, individually and DIANA Dawson as parent and natural Guardian of BRYAN DAWSON, a minor,

vs.

CHRYSLER CORPORATION,

Defendant-Third Party Plaintiff,

vs.

TOWNSHIP OF PENNSAUKEN, DELTA LEASING COMPANY and CHERRY HILL DODGE, INC.,

Third Party Defendants,

and

TOWNSHIP OF PENNSAUKEN,

Fourth Party Plaintiff,

vs.

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CUMBERLAND MUTUAL FIRE INSURANCE COMPANY,

Fourth Party Defendant,

PEERLESS INSURANCE COMPANY,

Fourth Party Defendant,

Defendant, CHRYSLER CORPORATION,

Appellant.

(D. C. Civil No. 76-1651)

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF NEW JERSEY

Present:

ADAMS, VANDUSEN and WEIS, *Circuit Judges.*

JUDGMENT

This cause came on to be heard on the record from the United States District Court for the District of New Jersey and was argued by counsel on January 7, 1980 and reargued on April 30, 1980.

On consideration whereof, it is now here ordered and adjudged by this Court that the judgment of the said District Court, filed January 25, 1979, be, and the same is hereby affirmed. Costs taxed against appellants.

ATTEST:

SALLY MRVOS
Clerk

September 11, 1980

APPENDIX C

Order Denying the Petition for Rehearing En Banc

UNITED STATES COURT OF APPEALS

FOR THE THIRD CIRCUIT

No. 79-1363

RICHARD F. DAWSON, *et al., etc.,*

v.

CHRYSLER CORPORATION, *et al.,*

Chrysler Corporation, Appellant.

SUR PETITION FOR REHEARING EN BANC

Present:

ADAMS, VANDUSEN, GIBBONS, ROSEN, HUNTER, WEIS and HIGGINBOTHAM, *Circuit Judges.*

The petition for rehearing filed by Appellant, Chrysler Corporation, in the above entitled case having been submitted to the judges who participated in the decision of this court and to all the other available circuit judges of

the circuit in regular active service, and no judge who concurred in the decision having asked for rehearing, and a majority of the circuit judges of the circuit in regular active service not having voted for rehearing by the court in banc, the petition for rehearing is denied.

By the Court,
ARLIN M. ADAMS
Circuit Judge

Dated: October 17, 1980

Judges Seitz, Aldisert, Garth and Sloviter took no part in this petition.

APPENDIX D

Excerpts from the National Traffic and Motor Vehicle Safety Act of 1966, Pub. L. No. 89-563, Tit. I §107, 80 Stat. 718 (as codified in 15 U.S.C. §1381 *et seq.*)

CHAPTER 38.—TRAFFIC AND MOTOR VEHICLE SAFETY

[Outline of Provisions]

Sec.

1381. Congressional declaration of purpose [p. 40a].

Subchapter I.—Motor Vehicle Safety Standards

Part A—General Provisions

1391. Definitions [p. 40a-43a].

1392. Motor vehicle safety standards [p. 43a-47a].

(a) Establishment.

(b) Applicability of Administrative Procedure Act.

(c) Effective date of orders.

(d) Supremacy of federal standards; allowable higher standards for vehicles used by federal or state governments [p. 44a].

(e) Amendment and revocation of standards.

(f) Factors to be considered in prescribing standards.

(g) Interstate motor carriers and carriers of explosives and other dangerous articles.

(h) Issuance of initial federal safety standards.

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1393. [Repealed.]

1394. Judicial review of orders establishing standards; additional evidence before Secretary; certified copy of transcript.

1395. Research, testing, development, and training in traffic and vehicle safety.

(a) Scope of research.

(b) Grants for research.

(c) Availability of developed data to general public.

1396. Cooperation of Secretary with governmental and private agencies in developing standards.

1397. Prohibition against manufacture, sale, delivery, or importation of substandard vehicles [pp. 48a-53a].

(a) Access to records; certificate; notification of defect.

(b) Sale or delivery of used vehicles; federal standards for used vehicles; good faith failure to conform to federal safety standards; importation of substandard vehicles.

(c) Continuation of common law liability [p. 53a].

1398. Civil penalties; Secretary's authority to compromise.

1399. Jurisdiction of United States District Court.

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(a) Restraining violations of motor vehicle standards; injunction; notice; opportunity to achieve compliance.

(b) Criminal contempt; trial by jury.

(c) Venue.

(d) Subpoenas.

(e) Designation by manufacturers offering vehicle for importation of agent for service of process.

1400. Noncompliance with safety standards.

(a) Repurchase from distributor or dealer of vehicle not meeting standards.

(b) Civil action against manufacturer or distributor refusing to repurchase substandard vehicles; period of limitation.

(c) Determination of reimbursements for required installations.

1401. Inspection and investigation to enforce safety standards.

(a) Results of investigations given to Secretary of Treasury or Attorney General for action.

(b) Entry into factory, warehouse, or manufacturing establishment; reasonable inspection.

(c) Records, reports, and information from manufacturers; inspections and examination of relevant documents.

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(d) Performance and technical data; supplying data to each prospective purchaser and to first purchaser.

(e) Confidential information and trade secrets.

1402. Cost information.

(a) Submission and evaluation.

(b) Availability to public; publication in Federal Register; confidentiality of trade secrets and other confidential matter; information to committees of Congress.

(c) Definition.

(d) Rules and regulations.

(e) Authority of Secretary under other provisions unaffected.

1403. Certification of conformity with motor vehicle safety standards; form and placement of certification.

1404. National Traffic Safety Bureau; Traffic Safety Director; appointment.

1405. Effect upon antitrust laws.

1406. Use of testing and research facilities of public agencies.

1407. Rules and regulations.

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1408. Annual report to Congress; contents; recommendations.

1409. Authorization of appropriations.

1410. Exemption from safety standards of motor vehicles.

(a) Eligibility; procedure; criteria for temporary exemption or renewal of exemption; publication of notice of decision in Federal Register.

(b) Permanent labeling of exempted motor vehicle; contents; notification of dealer and first purchaser of exemption.

(c) Limitation periods for exemption or renewal; reapplication for renewal.

(d) Manufacturers eligible for exemptions.

(e) Applications for exemptions; contents.

(f) Promulgation of regulations for applications; disclosure of information contained in application.

(g) Definitions.

1410a. Petition of interested persons.

(a) Requests for Secretary's commencement of proceedings.

(b) Contents; factual statement; description of relief.

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(c) Public hearings or appropriate investigation or proceeding.

(d) Time of determination; commencement of proceedings upon grant of petition; publication in Federal Register of reasons for denial of petition.

(e) Additional remedies.

1410b. Occupant restraint systems.

(a) Amendment of Federal motor vehicle safety standard numbered 208; effective date.

(b) Federal motor vehicle safety standard requirements.

(c) Federal motor vehicle safety standard promulgation procedure; rule making requirement; data, view or arguments: presentation opportunity; transcript; notification of Congressional Committee; data, views, or arguments of Members of Congress; transmittal of standard to Congress and Congressional Committees.

(d) Concurrent resolution of disapproval during prescribed period; Federal motor vehicle safety standard effective upon expiration of such period.

(e) Judicial review of Federal motor vehicle safety standard.

(f) Definitions.

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PART B—DISCOVERY, NOTIFICATION, AND REMEDY OF MOTOR VEHICLE DEFECTS

1411. Notification respecting manufacturer's finding of defect or failure to comply.

1412. Notification respecting Secretary's finding of defect or failure to comply; publication in Federal Register; data, views, and arguments; presentation opportunity.

1413. Notice; contents, time, and form.

1414. Remedy of defect or failure to comply; publication in Federal Register; program filed with Secretary: notice of availability, publication in Federal Register.

1415. Enforcement of notification and remedy orders.

(a) Civil actions; venue; change of venue; consolidation; expedition of proceedings.

(b) Notification contents; liability of manufacturer.

(c) Civil actions for nonnotification of owners or purchasers; liability of manufacturer.

(d) Orders of Secretary against manufacturer; conditions for issuance.

1416. Reasonableness of notification and remedy; hearing.

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1417. Exemption for inconsequential defect or failure to comply; notice in Federal Register; data, views, and arguments: presentation opportunity.

1418. Information, disclosure, and recordkeeping; confidential information.

1419. Definitions.

1420. Effect on other laws.

SUBCHAPTER II.—TIRE SAFETY

1421. Labeling for pneumatic tires; required contents of label.

1422. Standards for original equipment tires; maximum permissible load standards to be met.

1423. Uniform quality grading system for motor vehicle tires; elimination of deceptive and confusing tire nomenclature.

1424. Regrooved tires.

1425. Conflicts with orders of Federal Trade Commission.

1426. Safety standards for retreaded tires.

SUBCHAPTER III.—RESEARCH AND TEST FACILITIES

1431. Facilities for research and testing in traffic safety.

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15 U.S.C. §1391

§ 1381. CONGRESSIONAL DECLARATION OF PURPOSE

Congress hereby declares that the purpose of this chapter is to reduce traffic accidents and deaths and injuries to persons resulting from traffic accidents. Therefore, Congress determines that it is necessary to establish motor vehicle safety standards for motor vehicles and equipment in interstate commerce; to undertake and support necessary safety research and development; and to expand the national driver register.

Pub.L. 89-563, § 1, Sept. 9, 1966, 80 Stat. 718.

SUBCHAPTER I—MOTOR VEHICLE SAFETY STANDARDS
PART A—GENERAL PROVISIONS

§ 1391. DEFINITIONS

As used in this subchapter—

(1) "Motor vehicle safety" means the performance of motor vehicles or motor vehicle equipment in such a manner that the public is protected against unreasonable risk of accidents occurring as a result of the design, construction or performance of motor vehicles and is also protected against unreasonable risk of death or injury to persons in the event accidents do occur, and includes nonoperational safety of such vehicles.

(2) "Motor vehicle safety standards" means a minimum standard for motor vehicle performance, or motor vehicle equipment performance, which is practicable, which meets the need for motor vehicle safety and which provides objective criteria.

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(3) "Motor vehicle" means any vehicle driven or drawn by mechanical power manufactured primarily for use on the public streets, roads, and highways, except any vehicle operated exclusively on a rail or rails.

(4) "Motor vehicle equipment" means any system, part, or component of a motor vehicle as originally manufactured or any similar part or component manufactured or sold for replacement or improvement of such system, part, or component or as any accessory, or addition to the motor vehicle, and any device, article, or apparel not a system, part, or component of a motor vehicle (other than medicines, or eyeglasses prescribed by a physician or other duly licensed practitioner), which is manufactured, sold, delivered, offered, or intended for use exclusively to safeguard motor vehicles, drivers, passengers, and other highway users from risk of accident, injury, or death.

(5) "Manufacturer" means any person engaged in the manufacturing or assembling of motor vehicles or motor vehicle equipment, including any person importing motor vehicles or motor vehicle equipment for resale.

(6) " Distributor" means any person primarily engaged in the sale and distribution of motor vehicles or motor vehicle equipment for resale.

(7) "Dealer" means any person who is engaged in the sale and distribution of new motor vehicles or motor vehicle equipment primarily to purchasers who in good faith purchase any such vehicle or equipment for purposes other than resale.

(8) "State" includes each of the several States, the District of Columbia, the Commonwealth of Puerto Rico,

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Guam, the Virgin Islands, the Canal Zone, and American Samoa.

(9) "Interstate commerce" means commerce between any place in a State and any place in another State, or between places in the same State through another State.

(10) "Secretary" means the Secretary of Transportation.

(11) "Defect" includes any defect in performance, construction, components, or materials in motor vehicles or motor vehicle equipment.

(12) "United States district courts" means the Federal district courts of the United States and the United States courts of the Commonwealth of Puerto Rico, Guam, the Virgin Islands, the Canal Zone, and American Samoa.

(13) "Vehicle Equipment Safety Commission" means the Commission established pursuant to the joint resolution of the Congress relating to highway traffic safety, approved August 20, 1958 (72 Stat. 635), or as it may be hereafter reconstituted by law.

(14) "schoolbus" means a passenger motor vehicle which is designed to carry more than 10 passengers in addition to the driver, and which the Secretary determines is likely to be significantly used for the purpose of transporting primary, preprimary, or secondary school students to or from such schools or events related to such schools.

(15) "schoolbus equipment" means equipment designed primarily as a system, part, or component of a schoolbus, or any similar part or component manufactured or sold

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for replacement or improvement of such system, part, or component or as an accessory or addition to a schoolbus.

Pub.L. 89-563, Title I, §102, Sept. 9, 1966, 80 Stat. 718; Pub.L. 89-670, § 6(a)(6)(A), Oct. 15, 1966, 80 Stat. 937. Pub.L. 91-265, § 2, May 22, 1970, 84 Stat. 262; Pub.L. 93-492, Title I, § 110(a), Title II, § 201, Oct. 27, 1974, 88 Stat. 1484.

§ 1392. MOTOR VEHICLE SAFETY STANDARDS—ESTABLISHMENT

(a) The Secretary shall establish by order appropriate Federal motor vehicle safety standards. Each such Federal motor vehicle safety standard shall be practicable, shall meet the need for motor vehicle safety, and shall be stated in objective terms.

Applicability of Administrative Procedure Act

(b) The Administrative Procedure Act shall apply to all orders establishing, amending, or revoking a Federal motor vehicle safety standard under this subchapter.

Effective date of orders

(c) Each order establishing a Federal motor vehicle safety standard shall specify the date such standard is to take effect which shall not be sooner than one hundred and eighty days or later than one year from the date such order is issued, unless the Secretary finds, for good cause shown, that an earlier or later effective date is in the public interest, and publishes his reasons for such finding.

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Supremacy of federal standards; allowable higher standards for vehicles used by federal or state governments

(d) Whenever a Federal motor vehicle safety standard established under this subchapter is in effect, no State or political subdivision of a State shall have any authority either to establish, or to continue in effect, with respect to any motor vehicle or item of motor vehicle equipment any safety standard applicable to the same aspect of performance of such vehicle or item of equipment which is not identical to the Federal standard. Nothing in this section shall be construed to prevent the Federal Government or the government of any State or political subdivision thereof from establishing a safety requirement applicable to motor vehicles or motor vehicle equipment procured for its own use if such requirement imposes a higher standard of performance than that required to comply with the otherwise applicable Federal standard.

Amendment and revocation of standards

(e) The Secretary may by order amend or revoke any Federal motor vehicle safety standard established under this section. Such order shall specify the date on which such amendment or revocation is to take effect which shall not be sooner than one hundred and eighty days or later than one year from the date the order is issued, unless the Secretary finds, for good cause shown, that an earlier or later effective date is in the public interest, and publishes his reasons for such finding.

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Factors to be considered in prescribing standards

(f) In prescribing standards under this section, the Secretary shall—

(1) consider relevant available motor vehicle safety data, including the results of research, development, testing and evaluation activities conducted pursuant to this chapter;

(2) consult with the Vehicle Equipment Safety Commission, and such other State or interstate agencies (including legislative committees) as he deems appropriate;

(3) consider whether any such proposed standard is reasonable, practicable and appropriate for the particular type of motor vehicle or item of motor vehicle equipment for which it is prescribed; and

(4) consider the extent to which such standards will contribute to carrying out the purposes of this chapter.

Interstate motor carriers and carriers of explosives and other dangerous articles

(g) In prescribing safety regulations covering motor vehicles subject to part II of the Interstate Commerce Act, as amended, or the Transportation of Explosives Act, as amended, the Interstate Commerce Commission shall not adopt or continue in effect any safety regulation which differs from a motor vehicle safety standard issued by the

Secretary under this subchapter, except that nothing in this subsection shall be deemed to prohibit the Interstate Commerce Commission from prescribing for any motor vehicle operated by a carrier subject to regulation under either or both of such Acts, a safety regulation which imposes a higher standard of performance subsequent to its manufacture than that required to comply with the applicable Federal standard at the time of manufacture.

Issuance of initial federal safety standards

(h) The Secretary shall issue initial Federal motor vehicle safety standards based upon existing safety standards on or before January 31, 1967. On or before January 31, 1968, the Secretary shall issue new and revised Federal motor vehicle safety standards under this subchapter.

Schoolbus and schoolbus equipment safety standards

(i)(1)(A) Not later than 6 months after October 27, 1974, the Secretary shall publish proposed Federal motor vehicle safety standards to be applicable to schoolbuses and schoolbus equipment. Such proposed standards shall include minimum standards for the following aspects of performance:

(i) Emergency exists.

(ii) Interior protection for occupants.

(iii) Floor strength.

(iv) Seating systems.

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(v) Crash worthiness of body and frame (including protection against rollover hazards).

(vi) Vehicle operating systems.

(vii) Windows and windshields.

(viii) Fuel systems.

(B) Not later than 15 months after October 27, 1974, the Secretary shall promulgate Federal motor vehicle safety standards which shall provide minimum standards for those aspects of performance set out in clauses (i) through (viii) of subparagraph (A) of this paragraph, and which shall apply to each schoolbus and item of schoolbus equipment which is manufactured in or imported into the United States on or after April 1, 1977.

(2) The Secretary may prescribe regulations requiring that any schoolbus be test-driven by the manufacturer before introduction into commerce.

(3) Not later than six months after July 8, 1976, the Secretary shall conduct a study and report to Congress on (A) the factors relating to the schoolbus vehicle which contribute to the occurrence of schoolbus accidents and resultant injuries, and (B) actions which can be taken to reduce the likelihood of occurrence of such accidents and severity of such injuries. Such study shall consider, among other things, the extent to which injuries may be reduced through the use of seat belts and other occupant restraint systems in schoolbus accidents, and an examination of the extent to which the age of schoolbuses increases the likelihood of accidents and resultant injuries.

Pub.L. 89-563, Title I, § 103, Sept. 9, 1966, 80 Stat. 719; Pub.L. 93-492, Title II, § 202, Oct. 27, 1974, 88 Stat. 1484; Pub.L. 94-346, §§ 2, 3, July 8, 1976, 90 Stat. 815.

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§ 1397. PROHIBITION AGAINST MANUFACTURE, SALE, DELIVERY, OR IMPORTATION OF SUBSTANDARD VEHICLES AND AGAINST RENDERING INOPERATIVE CERTAIN DEVICES, ELEMENTS OF DESIGN OR MOTOR VEHICLE EQUIPMENT—ACCESS TO RECORD; CERTIFICATION; NOTIFICATION OF DEFECT; "MOTOR VEHICLE REPAIR BUSINESS" DEFINED; EXEMPTIONS FROM INOPERATION RESTRICTION; EXEMPTION OF SAFETY BELT INTERLOCKS AND CONTINUOUS BUZZERS.

(a)(1) No person shall—

(A) manufacture for sale, sell, offer for sale, or introduce or deliver for introduction in interstate commerce, or import into the United States, any motor vehicle or item of motor vehicle equipment manufactured on or after the date any applicable Federal motor vehicle safety standard takes effect under this subchapter unless it is in conformity with such standard except as provided in subsection (b) of this section;

(B) fail or refuse access to or copying of records, or fail to make reports or provide information, or fail or refuse to permit entry or inspection, as required under section 1401 of this title; fail to keep specified records in accordance with such section; or fail or refuse to permit impounding, as required under section 1401(a) of this title;

(C) fail to issue a certificate required by section 1403 of this title, or issue a certificate to the effect

that a motor vehicle or item of motor vehicle equipment conforms to all applicable Federal motor vehicle safety standards, if such person in the exercise of due care has reason to know that such certificate is false or misleading in a material respect;

(D) fail—

(i) to furnish notification,

(ii) to remedy any defect or failure to comply, or

(iii) to maintain records,

as required by part B of this subchapter; or fail to comply with any order or other requirement applicable to any manufacturer, distributor, or dealer pursuant to such part B;

(E) fail to comply with any rule, regulation, or order issued under section 1401 or 1404 of this title; and

(F) to fail to comply with regulations of the Secretary under section 1392(i)(2) of this title.

(2)(A) No manufacturer, distributor, dealer, or motor vehicle repair business shall knowingly render inoperative, in whole or part, any device or element of design installed on or in a motor vehicle or item of motor vehicle equipment in compliance with an applicable Federal motor vehicle safety standard, unless such manufacturer, distributor, dealer, or repair business reasonably believes that such vehicle or item of equipment will not be used (other than for testing or similar purposes in the course of maintenance or repair) during the time such device

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or element of design is rendered inoperative. For purposes of this paragraph, the term "motor vehicle repair business" means any person who holds himself out to the public as in the business of repairing motor vehicles or motor vehicle equipment for compensation.

(B) The Secretary may by regulation exempt any person from this paragraph if he determines that such exemption is consistent with motor vehicle safety and the purposes of this chapter. The Secretary may prescribe regulations defining the term "render inoperative".

(C) This paragraph shall not apply with respect to the rendering inoperative of (i) any safety belt interlock (as defined in section 1410b(f)(1) of this title) or (ii) any continuous buzzer (as defined in section 1410b (f)(4) of this title) designed to indicate that safety belts are not in use.

(D) Paragraph (1)(A) of this subsection shall not apply to the sale or offering for sale of any motor vehicle which has such a buzzer or interlock rendered inoperative by a dealer at the request of the first purchaser of such vehicle.

Sale or delivery of used vehicles; federal standards for used vehicles; good faith failure to conform to federal safety standards; importation of substandard vehicles

(b)(1) Paragraph (1)(A) of subsection (a) of this section shall not apply to the sale, the offer for sale, or the introduction or delivery for introduction in interstate

commerce of any motor vehicle or motor vehicle equipment after the first purchase of it in good faith for purposes other than resale. In order to assure a continuing and effective national traffic safety program, it is the policy of Congress to encourage and strengthen the enforcement of State inspection of used motor vehicles. Therefore to that end the Secretary shall conduct a thorough study and investigation to determine the adequacy of motor vehicle safety standards and motor vehicle inspection requirements and procedures applicable to used motor vehicles in each State, and the effect of programs authorized by this subchapter upon such standards, requirements, and procedures for used motor vehicles, and report to Congress as soon as practicable but not later than September 9, 1967, the results of such study, and recommendations for such additional legislation as he deems necessary to carry out the purposes of this chapter. As soon as practicable after the submission of such report but no later than one year from the date of submission of such report, the Secretary, after consultation with the Council and such interested public and private agencies and groups as he deems advisable, shall establish uniform Federal motor vehicle safety standards applicable to all used motor vehicles. Such standards shall be expressed in terms of motor vehicle safety performance. The Secretary is authorized to amend or revoke such standards pursuant to this chapter.

(2) Paragraph (1)(A) of subsection (a) of this section shall not apply to any person who establishes that he did not have reason to know in the exercise of due care that such vehicle or item of motor vehicle equipment is not in conformity with applicable Federal motor

vehicle safety standards, or to any person who, prior to such first purchase, holds a certificate issued by the manufacturer or importer of such motor vehicle or motor vehicle equipment, to the effect that such vehicle or equipment conforms to all applicable Federal motor vehicle safety standards, unless such person knows that such vehicle or equipment does not so conform.

(3) A motor vehicle or item of motor vehicle equipment offered for importation in violation of paragraph (1)(A) of subsection (a) of this section shall be refused admission into the United States under joint regulations issued by the Secretary of the Treasury; except that the Secretary of the Treasury and the Secretary may, by such regulations, provide for authorizing the importation of such motor vehicle or item of motor vehicle equipment into the United States upon such terms and conditions (including the furnishing of a bond) as may appear to them appropriate to insure that any such motor vehicle or item of motor vehicle equipment will be brought into conformity with any applicable Federal motor vehicle safety standard prescribed under this subchapter, or will be exported or abandoned to the United States.

(4) The Secretary of the Treasury and the Secretary may, by joint regulations, permit the temporary importation of any motor vehicle or item of motor vehicle, equipment after the first purchase of it in good faith for purposes other than resale.

(5) Paragraph (1)(A) of subsection (a) of this section shall not apply in the case of a motor vehicle or item of motor vehicle equipment intended solely for export, and so labeled or tagged on the vehicle or item

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itself and on the outside of the container, if any, which is exported.

Continuation of common law liability

(c) Compliance with any Federal motor vehicle safety standard issued under this subchapter does not exempt any person from any liability under common law.

Pub.L. 89-563, Title I, § 108, Sept. 9, 1966, 80 Stat. 722; Pub.L. 93-492, Title I, § 103(a), Title II, § 203, Oct. 27, 1974, 88 Stat. 1477, 1485.

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APPENDIX E

Federal Motor Vehicle Safety Standard 208, 49 C.F.R. §571.208 (1972)

§ 571.208 Standard No. 208; Occupant crash protection. (Effective Jan. 1, 1972, with amendments effective Jan. 1, 1973)

S1. *Scope.* This standard specifies performance requirements for the protection of vehicle occupants in crashes.

S2. *Purpose.* The purpose of this standard is to reduce the number of deaths of vehicle occupants, and the severity of injuries, by specifying vehicle crashworthiness requirements in terms of forces and accelerations measured on anthropomorphic dummies in test crashes, and by specifying equipment requirements for active and passive restraint systems.

S3. *Application.* This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses. In addition, S9, *Pressure vessels and explosive devices,* applies to vessels designed to contain a pressurized fluid or gas, and to explosive devices, for use in the above types of motor vehicles as part of a system designed to provide protection to occupants in the event of a crash.

S4. *General requirements.*

S4.1 *Passenger cars.*

S4.1.1 *Passenger cars manufactured from January 1, 1972 to August 14, 1973.* Each passenger car manufac-

tured from January 1, 1972, to August 14, 1973, inclusive shall meet the requirements of S4.1.1.1, S4.1.1.2, or S4.-1.1.3. A protection system that meets the requirements of S4.1.1.1 or S4.1.1.2 may be installed at one or more designated seating positions of a vehicle that otherwise meets the requirements of S4.1.1.3.

S4.1.1.1 *First option—complete passive protection system.* The vehicle shall meet the crash protection requirements of S5 by means that require no action by vehicle occupants.

S4.1.1.2 *Second option—lap belt protection system with belt warning.* The vehicle shall—

(a) At each designated seating position have a Type 1 seatbelt assembly or a Type 2 seatbelt assembly with a detachable upper torso portion that conforms to S7.1 and S7.2 of this standard.

(b) At each front outboard designated seating position, have a seat belt warning system that conforms to S7.3; and

(c) Meet the frontal crash protection requirements of S5.1, in a perpendicular impact, with respect to anthropomorphic test devices in each front outboard designated seating position restrained only by Type 1 seat belt assemblies.

S4.1.1.3 *Third option—lap and shoulder belt protection system with belt warning.*

S4.1.1.3.1 Except for convertibles and open-body vehicles, the vehicle shall—

(a) At each front outboard designated seating position have a Type 2 seatbelt assembly that conforms to § 571.-

209 and S7.1 and S7.2 of this standard, with either an integral or detachable upper torso portion, and a seatbelt warning system that conforms to S7.3;

(b) At each designated seating position other than the front outboard positions, have a Type 1 or Type 2 seat belt assembly that conforms to § 571.209 and to S7.1 and S7.2 of this standard; and

(c) When it perpendicularly impacts a fixed collision barrier, while moving longitudinally forward at any speed up to and including 30 m.p.h., under the test conditions of S8.1 with anthropomorphic test devices at each front outboard position restrained by Type 2 seatbelt assemblies, experience no complete separation of any load-bearing element of a seatbelt assembly or anchorage.

S4.1.1.3.2 Convertibles and open-body type vehicles shall at each designated seating position have a Type 1 or Type 2 seatbelt assembly that conforms to § 571.209 and to S7.1 and S7.2 of this standard, and at each front outboard designated seating position have a seatbelt warning system that conforms to S7.3.

S4.1.2 *Passenger cars manufactured from August 15, 1973, to August 14, 1975.* Passenger cars manufactured from August 15, 1973, to August 14, 1975, inclusive, shall meet the requirements of S4.1.2.1, S4.1.2.2, or S4.1.2.3. A protection system that meets the requirements of S4.-1.2.1 or S4.1.2.2 may be installed at one or more designated seating positions of a vehicle that otherwise meets the requirements of S4.1.2.3.

S4.1.2.1 *First option—complete passive protection system.* The vehicle shall meet the crash protection require-

ments of S5 by means that require no action by vehicle occupants.

S4.1.2.2 *Second option—head-on passive protection system.* The vehicle shall—

(a) At each designated seating position have a Type 1 seat belt assembly or a Type 2 seat belt assembly with a detachable upper torso portion that conforms to S7.1 and S7.2 of this standard.

(b) At each front designated seating position, meet the frontal crash protection requirements of S5.1, in a perpendicular impact, by means that require no action by vehicle occupants;

(c) At each front designated seating position, meet the frontal crash protection requirements of S5.1, in a perpendicular impact, with a test device restrained by a Type 1 seatbelt assembly; and

(d) At each front outboard designated seating position, have a seatbelt warning system that conforms to S7.3.

S4.1.2.3 *Third option—lap and shoulder belt protection system with ignition interlock and belt warning.*

S4.1.2.3.1 Except for convertibles and open-body vehicles, the vehicle shall—

(a) At each front outboard designated seating position have a Type 1 seat belt assembly or a Type 2 seat belt assembly with a nondetachable upper torso portion that conforms to S7.1 and S7.2 of this standard, a seat belt

warning system that conforms to S7.3, and a belt interlock system that conforms to S7.4;

(b) At any center front designated seating position, have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 and to S7.1 and S7.2 of this standard, a seat belt warning system that conforms to S7.3, and a belt interlock system that conforms to S7.4;

(c) At each other designated seating position, have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 and S7.1 and S7.2 of this standard;

(d) At each front outboard designated seating position, meet the frontal crash protection requirements of S5.1, in a perpendicular impact, with the test device restrained by a Type 1 seat belt assembly or a Type 2 seat belt assembly with a nondetachable upper torso portion; and

(e) When it perpendicularly impacts a fixed collision barrier, while moving longitudinally forward at any speed up to and including 30 m.p.h., under the test conditions of S8.1, with an anthropomorphic test device at any front center seating position restrained by a Type 1 or Type 2 seatbelt assembly, experience no complete separation of any load-bearing element of the seatbelt assembly or anchorage.

S4.1.2.3.2 Convertibles and open-body type vehicles shall at each designated seating position have a Type 1 or Type 2 seatbelt assembly that conforms to Standard No. 209 and to S7.1 and S7.2 of this standard, and at each front designated seating position have a seatbelt warning system that conforms to S7.3, and a belt interlock system that conforms to S7.4.

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S4.5 *Other general requirements.*

S4.5.1 *Labeling and driver's manual information.* Each vehicle shall have a label setting forth the manufacturer's recommended schedule, specified by month and year, for the maintenance or replacement, necessary to retain the performance required by this standard, of any crash-deployed occupant protection system. The label shall be permanently affixed to the vehicle within the passenger compartment and lettered in English in block capitals and numerals not less than three thirty-seconds of an inch high. Instructions concerning maintenance or replacement of the system and a description of the functional operation of the system shall be provided with each vehicle, with an appropriate reference on the label. If a vehicle owner's manual is provided, this information shall be included in the manual.

S4.5.2 *Readiness indicator.* An occupant protection system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. The indicator shall monitor its own readiness and shall be clearly visible from the driver's designated seating position. A list of the elements of the system being monitored by the indicator shall be included with the information furnished in accordance with S4.5.1 but need not be included on the label.

S4.5.3 *Passive belts.* Except as provided in S4.5.3.1, a seat belt assembly that requires no action by vehicle occupants (hereinafter referred to as a "passive belt") may be used to meet the crash protection requirements of any option under S4 and in place of any seat belt assembly otherwise required by that option.

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S4.5.3.1 A passive belt that provides only pelvic restraint may not be used pursuant to S4.5.3 to meet the requirements of an option that requires a Type 2 seat belt assembly.

S4.5.3.2 A passive belt, furnished pursuant to S4.5.3, that provides both pelvic and upper torso restraint may have either a detachable or nondetachable upper torso portion, notwithstanding provisions of the option under which it is furnished.

S4.5.3.3 A passive belt furnished pursuant to S4.5.3 shall confrom to S7.1 of this standard, but need not conform to S7.2, S7.3, and S7.4 of this standard.

S4.5.3.4 A passive belt furnished pursuant to S4.5.3 that is not required to meet the perpendicular frontal crash protection requirements of S5.1 shall conform to the webbing, attachment hardware, and assembly performance requirements of Standard No. 209.

S5. *Occupant crash protection requirements.*

S5.1 *Frontal barrier crash.* When the vehicle, traveling longitudinally forward at any speed up to and including 30 m.p.h., impacts a fixed collision barrier that is perpendicular to the line of travel of the vehicle, or any any angle up to 30° in either direction from the perpendicular to the line of travel of the vehicle, under the applicable conditions of S8, with anthropomorphic test devices at each designated seating position for which a barrier crash test is required under S4, it shall meet the injury criteria of S6.

S5.2 *Lateral moving barrier crash.* When the vehicle is impacted laterally on either side by a barrier moving at

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20 m.p.h., with test devices at the outboard designated seating positions adjacent to the impacted side, under the applicable conditions of S8, it shall meet the injury criteria of S6.

S5.3 *Rollover.* When the vehicle is subjected to a rollover test in either lateral direction at 30 m.p.h. with test devices in the outboard designated seating positions on its lower side as mounted on the test platform, under the applicable conditions of S8, it shall meet the injury criteria of S6.1. However, vehicles manufactured before Aug. 15, 1977, that conform to the requirements of Standard No. 216 (§ 571.216) need not conform to this rollover test requirement.

EFFECTIVE DATE: The provisions set forth at 36 F.R. 23300, Dec. 8, 1971 affecting S5.3 become effective Aug. 15, 1973.

S6. *Injury criteria.*

S6.1 All portions of the test device shall be contained within the outer surfaces of the vehicle passenger compartment throughout the test.

S6.2 The resultant acceleration at the center of gravity of the head shall be such that the expression:

$$\left[\frac{1}{t_2-t_1}\int_{t_1}^{t_2} a\ dt\right]^{2.5}(t_2-t_1)$$

shall not exceed 1,000, where a is the resultant accleration expressed as a multiple of g (the accleration of gravity), and t^1 and t^2 are any two points in time during the crash.

However, in the case of a vehicle manufactured before August 15, 1975, when the dummy is restrained by a seat belt system, t^1 and t^2 are any two points in time after the head contacts a part of the vehicle other than the belt system.

S6.3 The resultant acceleration at the center of gravity of the upper thorax shall not exceed 60g., except for intervals whose cumulative duration is not more than 3 milliseconds. However, in the case of a vehicle manufactured before August 15, 1975, when the dummy is restrained by a seatbelt system, the resultant acceleration at the center of gravity of the upper thorax shall not exceed a severity index of 1000, calculated by the method described in SAE Information Report J885a, October 1966.

S6.4 The force transmitted axially though each upper leg shall not exceed 1,400 pounds.

S7.1 *Adjustment.*

S7.1.1 Except as specified in S7.1.1.1 and S7.1.1.2, the lap belt of any seat belt assembly furnished in accordance with S4.1.1 and S4.1.2 shall adjust by means of an emergency-locking or automatic-locking retractor that conforms to § 571.209 to fit persons whose dimensions range from those of a 50th-percentile 6-year-old child to those of a 95th-percentile adult male and the upper torso restraint shall adjust by means of an emergency-locking retractor or a manual adusting device that conforms to § 571.209 to fit persons whose dimensions range from those of a 5th-percentile adult female to those of a 95th-percentile adult male, with the seat in any position and the seat back in the manufacturer's nominal design riding position. However,

an upper torso restraint furnished in accordance with S4.1.2.3.1(a) shall adjust by means of an emergency-locking retractor that conforms to Standard No. 209.

S7.1.1.1 A seat belt assembly installed at the driver's seating position shall adjust to fit persons whose dimensions range from those of a 5th-percentile adult female to those of a 95th-percentile adult male.

S7.1.1.2 A seat belt assemby installed at any designated seating position other than the outboard positions of the front and second seats shall adjust either by a retractor as specified in S7.1.1 or by a manual adjusting device that conforms to § 571.209.

S7.1.2 The intersection of the upper torso belt with the lap belt in any Type 2 seat belt assembly furnished in accordance with S4.1.1 or S4.1.2, with the upper torso manual adjusting device, if provided, adjusted in accordance with the manufacturer's instructions, shall be at least 6 inches from the front vertical centerline of a 50th-percentile adult male occupant, measured along the centerline of the lap belt, with the seat in its rearmost and lowest adjustable position and with the seat back in the manufacturer's nominal design riding position.

S7.2 *Latch mechanism.* A seat belt assembly installed in a passenger car shall have a latch mechanism—

(a) Whose components are accessible to a seated occupant in both the stowed and operational positions;

(b) That releases both the upper torso restraint and the lap belt simultaneously, if the assembly has an uppor torso

restraint that requires unlatching for release of the occupant; and

(c) That releases at a single point by a pushbutton action.

S7.3 *Seat belt warning system.* The following provisions shall apply to all seat belt assemblies furnished in accordance with S4.1.1 or S4.1.2, except as provided by S7.3.5 with respect to belt interlock systems furnished in accordance with S4.1.2.3.

S7.3.1 Seat belt assemblies provided at the front outboard seating positions in accordance with S4.1.1 or S4.1.2 shall have a warning system that activates, for at least 1 minute, a continuous or intermittent audible signal and continuous or flashing warning light, visible to the driver, displaying the words "Fasten Seat Belts" or "Fasten Belts" when condition (a) exists simultaneously with either of conditions (b) or (c).

(a) The vehicle's engine is operating and the transmission gear selector is in any forward position.

(b) The driver's lap belt is not in use, as determined, at the manufacturer's option, either by the belt latch mechanism being fastened or by the belt being extended at least 4 inches from its stowed position.

(c) A person of at least the weight of a 50th percentile adult male is seated with the belt fastened at the driver's position, and a person of at least the weight of a 50th percentile 6-year-old child is seated in the right front designated seating position and the lap belt for that position is

not in use, as determined, at the manufacturer's option, either by the belt latch mechanism being fastened or by the belt being extended at least 4 inches from its stowed position.

S7.3.2 The warning system shall either—

(a) Not activate when the lap belt at each occupied front outboard seating position is extended to any length greater than the length necessary to fit a 50th- percentile 6-year-old child when the seat is in the rearmost and lowest adjustment position;

(b) Not activate when the lap belt at each occupied front outboard position is buckled; or

(c) Not activate when the operation specified in (a) or (b) is performed at each occupied front outboard seating position after the occupant is seated.

S7.3.3 The warning systems shall not activate if the vehicle has an automatic transmission, the engine is operating, and the gear selector is in the "Park" position.

S7.3.4 Notwithstanding the provisions of S7.3.1 and S7.3.5.2, when the engine of a vehicle with a manual transmission is operating, the warning system shall either—

(a) Not activate when the transmission is in neutral; or

(b) Not activate when the parking brake is engaged.

S7.3.5 The above provisions of S7.3 shall apply to seat belt assemblies with interlock systems furnished in accordance with S4.1.2.3, with the following exceptions.

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S7.3.5.1 The warning system shall also be provided for the center front seating position, if any.

S7.3.5.2 In addition to the conditions specified in S7.3.1, the warning system shall activate if—

(a) The vehicle's engine is operating and the transmission gear selector is in any forward position, and

(b) A person of at least the weight of a 50th percentile adult male is seated with the belt fastened at the driver's position, and a person of at least the weight of a 5th percentile adult female is seated in a center front designated seating position and the lap belt for the center front position is not in use, as determined, at the manufacturer's option, either by the belt latch mechanism being fastened or the belt being extended at least 4 inches from its stowed position.

S7.3.5.3 The provisions of S7.3.2 shall apply to all front seating positions.

S7.3.5.4 Notwithstanding the other provisions of S7.3, the warning system shall activate whenever the ignition switch is in the "start" position and the operation of the seatbelt systems required by S7.4.1 to start the engine has not been performed.

S7.4 *Belt interlock system.*

S7.4.1 Except as otherwise provided in S7.4.3 and S7.4.4, the engine starting system of a passenger car manufactured in accordance with S4.1.2.3 shall not be operable when either condition (a) or (b) exists, unless the belt

system at each occupied position is operated after the occupant is seated. At each seating position, the operation that allows the starting of the engine shall be, at the manufacturer's option, either the extension of the belt assembly at least 4 inches from its stowed position, or the fastening of the belt latch mechanism.

(a) A person of at least the weight of a 5th percentile adult female is seated at the driver's seating position.

(b) A person of at least the weight of a 50th-percentile adult male is seated at the driver's seating position and a person of at least the weight of a fifth percentile adult female is seated at the center front position or a person of at least the weight of a 50th-percentile 6-year-old child is seated at the right front seating position.

S7.4.2 A belt interlock system furnished in accordance with S7.4.1 shall not affect the operation of the vehicle when the engine is running.

S7.4.4 Notwithstanding the provisions of S7.4.1, an engine starting system may be operable, if after each cycle of the ignition switch from "off" to "on" or "start" and back to "off," a manual switch is operated within the engine compartment.

S7.4.3 Notwithstanding the provisions of S7.4.1, an engine starting system may operate without the interference from a belt interlock system after the engine has stopped if the ignition has not been turned off, or within a period of not more than 3 minutes after the ignition has been turned off, or if the driver has not left his seated position.

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S8. *Test conditions.*

S8.1 *General conditions.* The following conditions apply to the frontal, lateral, and rollover tests.

S8.1.1 The vehicle, including test devices and instrumentation, is loaded as follows:

(a) *Passenger cars.* A passenger car is loaded to its unloaded vehicle weight plus its rated cargo and luggage capacity weight, secured in the luggage area, plus the weight of the necessary anthropomorphic test devices.

S8.1.1(b) *Multipurpose passenger vehicles, trucks, and buses.* A multipurpose passenger vehicle, truck, or bus is loaded to its unloaded vehicle weight plus 300 pounds or its rated cargo and luggage capacity weight, whichever is less, secured in the load carying area and distributed as nearly as possible in proportion to its gross axle weight ratings, plus the weight of the necessary anthropomorphic test devices.

S8.1.2 Adjustable seats are in the adjustment position midway between the forwardmost and rearmost positions, and if separately adjustable in a vertical direction, are at the lowest position.

S8.1.3 Adjustable seat backs are in the manufacturer's nominal design riding position.

S8.1.4 Adjustable steering controls are adjusted so that the steering wheel hub is at the geometeric center of the locus it describes when it is moved through its full range of driving positions.

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S8.1.5 Movable vehicle windows and vents are in the fully closed position.

S8.1.6 Convertibles and open-body type vehicles have the top, if any, in place in the closed passenger compartment configuration.

S8.1.7 Doors are fully closed and latched but not locked.

S8.1.8 Anthropomorphic test devices conform to the requirements of SAE Recommended Practice J963, June 1968, and have a pelvic structure that conforms to Figure 1. The weights, dimensions and centers of gravity specified in SAE J963 for the test device segments are determined with all instrumentation in place.

S8.1.9 Each test device is clothed in form-fitting cotton stretch garments.

S8.1.10 Limb joints are set at 1g, barely restraining the weight of the limb when extended horizontally. Leg joints are adjusted with the torso in the supine position. Articulated head, neck, and torso joints do not move at a horizontal acceleration load of 1g, in the test position, but move at a horizontal acceleration load of 2g.

S8.1.11 Each test device is firmly placed in a designated seating position in the following manner.

(a) The head is aligned by placing the test device on its back on a rigid, level surface and by adjusting the head so that it touches the level surface and is laterally centered with respect to the device's axis of symmetry.

(b) The test device is placed in the vehicle in the normal upright sitting posture, and a rigid roller, 6 inches in diameter and 24 inches long, is placed transversely as low as possible against the front of the torso.

(c) The roller is pressed horizontally against the torso with a force of 50 pounds.

(d) Force is applied at the shoulder level to bend the torso forward over the roller, flexing the lower back, and to return the test device to the upright sitting posture.

(e) The roller is slowly released.

S8.1.12 Except as otherwise herein specified, the test devices are not restrained during impacts by any means that require occupant action.

S8.1.13 The hands of the test device in the driver's designated seating position are on the steering wheel rim at the horizontal centerline. The right foot rests on the undepressed accelerator pedal, with the heel in contact with the point where the centerline of the upper surface of the undepressed accelerator pedal intersects the upper surface of the floor covering. The left leg is placed as in S8.1.14.

S8.1.14 The hands of each other test device are resting on the seat with the palms touching the legs, and the upper arms are resting against the seat back and flush with the body. Where possible, the legs are outstretched, with the thighs on the seat and the heels touching the floor with the foot at 90° to the tibia. Otherwise, the tibia are vertical with the feet resting on the floor. The left leg of a test device in the center front designated seating position is

on the vehicle centerline, and the right leg is in the right footwell. The left and right legs of a test device in the center rear designated seating position are in the left and right footwells, respectively.

S8.1.15 A load sensing device is installed in each upper leg, 4.25 inches from the knee's axis of rotation, so that all force transmitted from the knee to the upper leg is measured.

S8.1.16 Acceleration sensing devices are installed in each test device to measure orthogonal accelerations at the center of gravity of the head and upper thorax.

S8.1.17 The output of acceleration and loading sensing devices is recorded in individual data channels that conform to the requirements of SAE Recommended Practice J211, October 1970, with channel classes as follows:

(a) Head acceleration—1,000 Hz.

(b) Upper thorax acceleration—180 Hz.

(c) Upper leg force—600 Hz.

S8.1.18 The sensing devices are rigidly attached to the test devices by mountings that have no resonance frequency within the frequency-range of the specified channel class.

S8.1.19 Instrumentation does not affect the motion of test devices during impact or rollover.

S8.2 *Lateral moving barrier crash test conditions.* The following conditions apply to the lateral moving barrier crash test.

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S8.2.1 The moving barrier, including the impact surface, supporting structure, and carriage, weighs 4,000 pounds.

S8.2.2 The impact surface of the barrier is a vertical, rigid, flat rectangle, 78 inches wide and 60 inches high, perpendicular to its direction of movement, with its lower edge horizontal and 5 inches above the ground surface.

S8.2.3 During the entire impact sequence the barrier undergoes no significant amount of dynamic or static deformation, and absorbs no significant portion of the energy resulting from the impact, except for energy that results in translational rebound movement of the barrier.

S8.2.4 During the entire impact sequence the barrier is guided so that it travels in a straight line, with no significant lateral, vertical or rotational movement.

S8.2.5 The concrete surface upon which the vehicle is tested is level, rigid and of uniform construction, with a skid-number of 75 when measured in accordance with American Society for Testing and Materials Method E-274-65T at 40 m.p.h., omitting water delivery as specified in paragraph 7.1 of that method.

S8.2.6 The tested vehicle's brakes are disengaged and the transmission is in neutral.

S8.2.7 The barrier and the test vehicle are positioned so that at impact—

(a) The vehicle is at rest in its normal attitude;

(b) The barrier it traveling in a direction perpendicular to the longitudinal axis of the vehicle at 20 m.p.h.; and

(c) A vertical plane through the geometric center of the barrier impact surface and perpendicular to that surface passes through the driver's seating reference point in the tested vehicle.

S8.3 *Rollover test conditions.* The following conditions apply to the rollover test.

S8.3.1 The tested vehicle's brakes are disengaged and the transmission is in neutral.

S8.3.2 The concrete surface on which the test is conducted is level, rigid, of uniform construction, and of a sufficient size that the vehicle remains on it throughout the entire rollover cycle. It has a skid number of 75 when measured in accordance with American Society of Testing and Materials Method E-274-65T at 40 m.p.h. omitting water delivery as specified in paragraph 7.1 of that method.

S8.3.3 The vehicle is placed on a device, similar to that illustrated in Figure 2, having a platform in the form of a flat, rigid plane at an angle of 23° from the horizontal. At the lower edge of the platform is an unyielding flange, perpendicular to the platform with a height of 4 inches and a length sufficient to hold in place the tires that rest against it. The intersection of the inner face of the flange with the upper face of the platform is 9 inches above the rollover surface. No other restraints are used to hold the vehicle in position dur-

ing the deceleration of the platform and the departure of the vehicle.

S8.3.4 With the vehicle on the test platform, the test devices remain as nearly as possible in the posture specified in S8.1.

S8.3.5 Before the deceleration pulse, the platform is moving horizontally, and perpendicularly to the longitudinal axis of the vehicle, at a constant speed of 30 m.p.h. for a sufficient period of time for the vehicle to become motionless relative to the platform.

S8.3.6 The platform is decelerated from 30 to 0 m.p.h. in a distance of not more than 3 feet, without change of direction and without transverse or rotational movement during the deceleration of the platform and the departure of the vehicle. The deceleration rate is at least 20g for a minimum of 0.04 seconds.

S9 *Pressure vessels and explosive devices.*

S9.1 *Pressure vessels.* A pressure vessel that is continuously pressurized shall conform to the requirements of §§ 178.65-2, 178.65-6(b), 178.65-7, 178.65-9(a) and (b), and 178.65-10 of this title. It shall not leak or evidence visible distortion when tested in accordance with § 178.65-11(a) of this title and shall not fail in any of the ways enumerated in § 178.65-11(b) of this title when hydrostatically tested to destruction. It shall not crack when flattened in accordance with § 178.65-12(a) of this title to the limit specified in § 178.65-12(a)(4) of this title.

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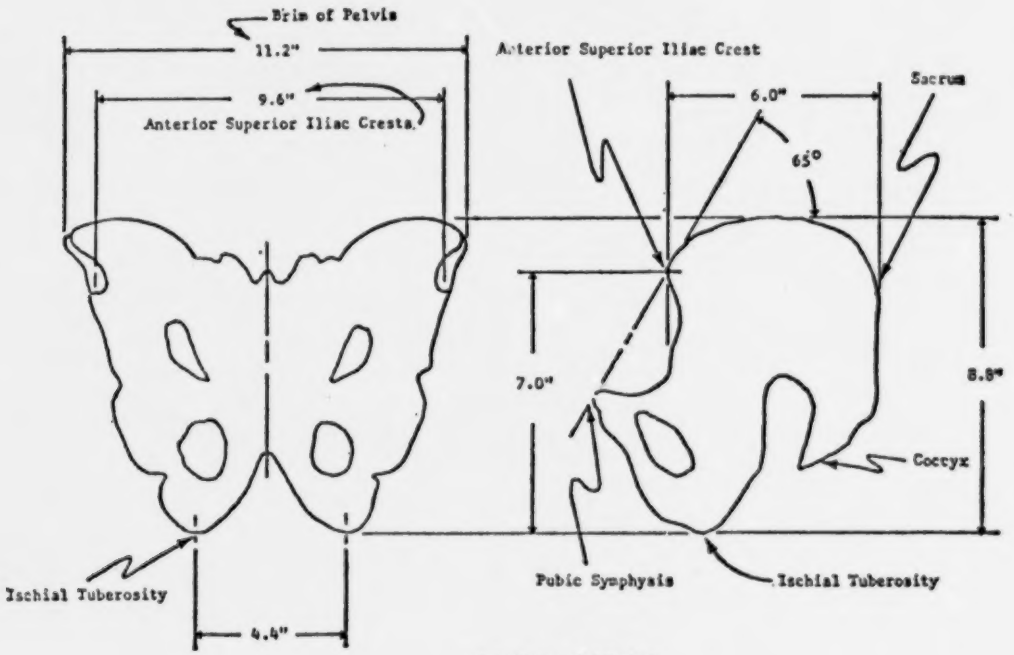
S9.2 *Explosive devices.* An explosive device shall not exhibit any of the characteristics prohibited by § 173.51 of this title. All explosive material shall be enclosed in a structure that is capable of containing the explosive energy without sudden release of pressure except through overpressure relief devices or parts designed to release the pressure during actuation.



PELVIC SECTION

50TH PERCENTILE MALE ANTHROPOMORPHIC TEST DEVICE

FIGURE I

NOTE: The concept of an occupant protection system that requires "no action by vehicle occupants" as used in Standard No. 208 is intended to designate a system that requires no action other than would be required if

the protective system were not present in the vehicle. Under this interpretation the concept does not include "forced action" systems as described above.

This interpretation is not intended to rule out the possibility that further rulemaking action may be taken in the future to permit such systems in certain cases.

[Figure 2, "Typical Device for Rollover Test," Omitted.]

[36 F.R. 22902, Dec. 2, 1971, as amended at 36 F.R. 23300, Dec. 8, 1971; 36 F.R. 23725, Dec. 14, 1971; 37 F.R. 3912, Feb. 24, 1972; 37 F.R. 9223, May 6, 1972; 37 F.R. 12393, June 23, 1972; 37 F.R. 13266, July 6, 1972; 37 F.R. 16186, Aug. 11, 1972]

APPENDIX F

Federal Motor Vehicle Safety Standard 214, 49 C.F.R. §571.214

§ 571.214 Standard No. 214; Side door strength.

S1. *Purpose and scope.* This standard specifies strength requirement for side doors of a motor vehicle to minimize the safety hazard caused by intrusion into the passenger compartment in a side impact accident.

S2. *Application.* This standard applies to passenger cars.

S3. *Requirements.* Each vehicle shall be able to meet the following requirements when any of its side doors that can be used for occupant egress are tested according to S4.

S3.1 *Initial crush resistance.* The initial crush resistance shall be not less than 2,250 pounds.

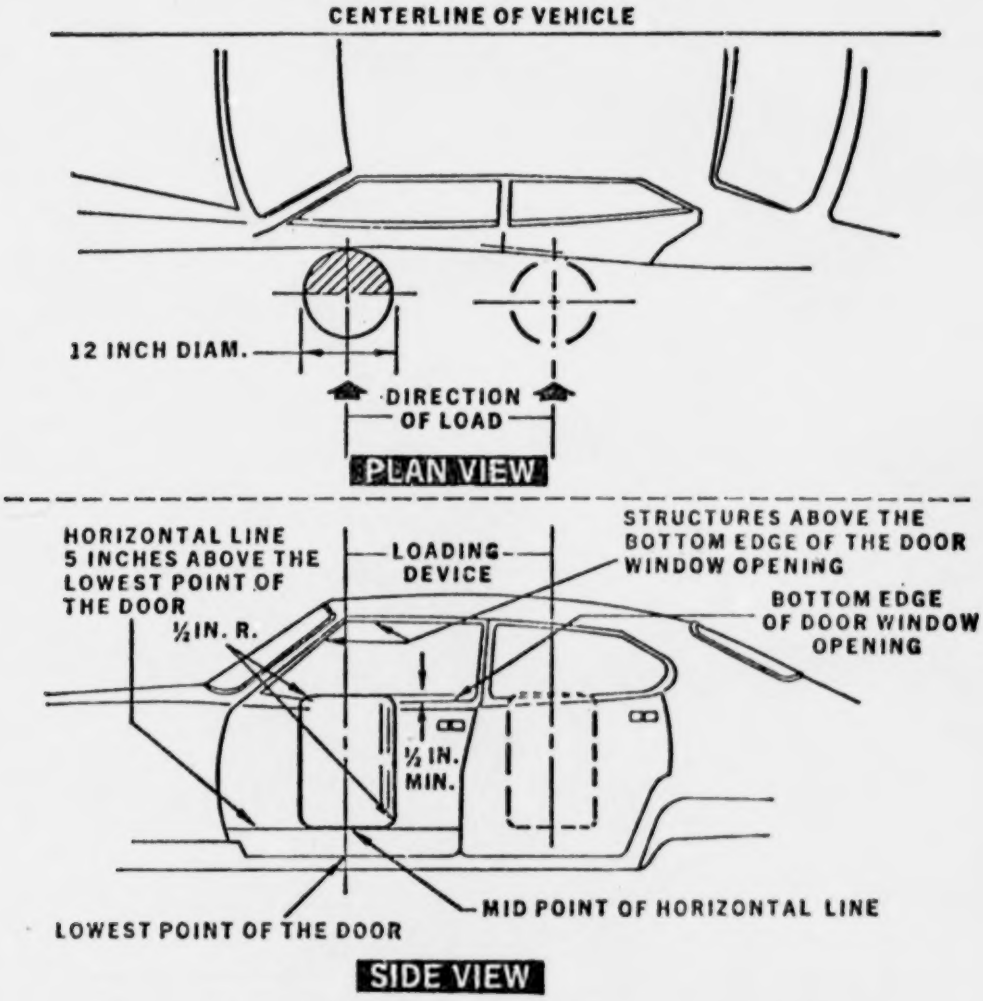
S3.2 *Intermediate crush resistance.* The intermediate crush resistance shall not be less than 3,500 pounds.

S3.3 *Peak crush resistance.* The peak crush resistance shall be not less than two times the curb weight of the vehicle or 7,000 pounds, whichever is less.

S4. *Test procedures.* The following procedures apply to determining compliance with section S3:

(a) Remove from the vehicle any seats that may affect load upon, or deflection of, the side of the vehicle. Place side windows in their uppermost position and all doors

in locked position. Place the sill of the side of the vehicle opposite to the side being tested against a rigid unyielding vertical surface. Fix the vehicle rigidly in position by means of tiedown attachments located at or forward of the front wheel centerline and at or rearward of the rear wheel centerline.


CENTERLINE OF VEHICLE
12 INCH DIAM.
DIRECTION OF LOAD
PLAN VIEW
HORIZONTAL LINE 5 INCHES ABOVE THE LOWEST POINT OF THE DOOR
½IN. R.
LOADING DEVICE
STRUCTURES ABOVE THE BOTTOM EDGE OF THE DOOR WINDOW OPENING
BOTTOM EDGE OF DOOR WINDOW OPENING
½ IN. MIN.
MID POINT OF HORIZONTAL LINE
LOWEST POINT OF THE DOOR
SIDE VIEW

LOADING DEVICE LOCATION AND APPLICATION TO THE DOOR

FIGURE 1

(b) Prepare a loading device consisting of a rigid steel cylinder or semicylinder 12 inches in diameter with an edge radius of one-half inch. The length of the loading device shall be such that the top surface of the loading device is at least one-half inch above the bottom edge of the door window opening but not of a length that will cause contact with any structure above the bottom edge of the door window opening during the test.

(c) Locate the loading device as shown in Figure 1 (side view) of this section so that:

(1) Its longitudinal axis is vertical;

(2) Its longitudinal axis is laterally opposite the midpoint of a horizontal line drawn across the outer surface of the door 5 inches above the lowest point of the door;

(3) Its bottom surface is in the same horizontal plane as the horizontal line described in paragraph (2) of this paragraph; and

(4) The cylindrical face of the device is in contact with the outer surface of the door.

(d) Using the loading device, apply a load to the outer surface of the door in an inboard direction normal to a vertical plane along the vehicle's longitudinal centerline. Apply the load continuously such that the loading device travel rate does not exceed one-half inch per second until the loading device travels 18 inches. Guide the loading device to prevent it from being rotated or displaced from its direction of travel. The test must be completed within 120 seconds.

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(e) Record applied load versus displacement of the loading device, either continuousy or in increments of not more than 1 inch or 200 pounds for the entire crush distance of 18 inches.

(f) Determine the initial crush resistance, intermediate crush resistance, and peak crush resistance as follows:

(1) From the results recorded in paragraph (e) of this paragraph, plot a curve of load versus displacement and obtain the integral of the applied load with respect to the crush distances specified in subdivisions (2) and (3) of this paragraph. These quantities, expressed in inch-pounds and divided by the specified crush distances, represent the average forces in pounds required to deflect the door those distances.

(2) The initial crush resistance is the average force required to deform the door over the initial 6 inches of crush.

(3) The intermediate crush resistance is the average force required to deform the door over the initial 12 inches of crush.

(4) The peak crush resistance is the largest force recorded over the entire 18-inch crush distance.

APPENDIX G

Excerpts from the Trial Testimony of Dr. Steven C. Batterman, an Expert Witness Called by Respondents

Q. Well, let's take your parameter frame car with the cross-members. Have you made any calculations as to what the invasion or protrusion into the car would have been, had the car been constructed as you say was practical and feasible in 1971?

A. Yes, I do. I did base it on my calculations for a frame which was a full perimeter frame and whose dimensions were suggested to me from the Ford frame here and I am not suggesting that's going to be suitable for the entire range of impact. I calculated that the deflection or the bending and intrusion, if that's what you want to call it, it would have been less than nine inches in this impact.

Q. Is that when you're talking about nine inches, incidentally, so we understand or at least I understand it—

A. Excuse me. I mean 9.9. Let me say less than ten inches, to correct myself.

Court of Appeals Appendix for Appellant, p. 1755a, lines 1-19.

* * *

Q. Now, is crush beneficial to the occupant of a vehicle?

A. It's beneficial if the area which is being crushed doesn't intrude into his survival space and so injure him.

Q. That's right. If it doesn't intrude and injure him, is that correct?

A. That is correct.

Q. Now in your testimony you have talked about a nine inch crush, isn't that correct?

A. Yes. I said there are frames which can be designed where there would only be nine or nine or ten inches of crush.

Appendix G

Q. You can design a vehicle not saying what speed it will go or how much gas it will consume or anything like that, where the crush would be limited to almost to zero, isn't that correct?

A. Might be possible to do that but that would then perhaps create other problems.

Q. So on one hand no crush is no good, is that right?

A. Well, it's a complicated question.

Q. I know it is.

A. Because you don't only have to provide the energy absorbing capability by crushing the vehicle structure, you can provide the interior package of the occupants differently. But, in general, first of all, there is no thing that a structure won't crush but, if you don't allow some capability of energy-absorption and you change the direction of motion of the vehicle, you might be subject in the vehicle to high deceleration motion.

Q. Now, even on your situation with a nine inch crush, that, for example, taking your vehicle that you say is okay and if you had a situation in which that vehicle impacted a pole right where the person was sitting and came in nine inches for that person, that nine inches wouldn't be any good, would it?

A. I did not subject my vehicle to that kind of an analysis. I took the analysis which is similar to this impact.

Q. I'm going to take your vehicle and take another factual situation, your nine inch crush wouldn't be any good for that person, would it?

A. It might not be. Could be injurious.

Court of Appeals Appendix for Appellant, p. 1901a, line 2 through p. 1903a, line 2.

APPENDIX H

United States Constitution
art. VI, cl.2 and art. I, § 8, cl.3

The Supremacy Clause provides:

> This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

U.S. Const., art. VI, cl.2.

The Commerce Clause provides:

> The Congress shall have Power . . . To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes; . . . .

U.S. Const., art. I, § 8, cl.3.